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DEPARTMENT OF SPORTS MANAGEMENT

LEADERSHIP AND TEAMWORK COMPETENCIES DEVELOPMENT THROUGH AN OUTDOOR EXPERIENTIAL TRAINING PROGRAM

by

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A Dissertation submitted to the Department of Sports Organization and Management of University of Peloponnese in Partial Fulfillment of Requirements for the Degree of Doctor of Philosophy

Sparta
2015

Declaration

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ABSTRACT

LEADERSHIP AND TEAMWORK COMPETENCIES DEVELOPMENT THROUGH AN OUTDOOR EXPERIENTIAL TRAINING PROGRAM

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(Directed by Professor, Athanasios Kriemadis)

There is a great need for professional development in times of a rapid economic growth. Common areas of global competences focus on flexibility and adaptation, leadership skills, teamwork and strategic thinking. For the conduction of this study, the following research questions were used: (1) Are there any immediate effect on teamwork as a result of the training? (2) Are there any immediate effect on leadership competencies as a result of the training? (3) Are there any differences between the professional and student group in post teamwork and leadership scores? (4) Are there any differences among participants of each group in post teamwork and leadership scores based on demographic variables such as age and gender? A mixed research method using qualitative and quantitative data was used, following a retrospective pretest-posttest design. A non-probability convenience sample of purpose was used including two predefined groups (professionals, n = 51) and (undergraduate students, n = 30). The intervention was a 2-day outdoor experiential training program including a series of small group activities, followed by short debriefing sessions. The Multifactor Leadership Questionnaire-MLQ (Bass & Avolio, 1997) was used to measure three types of leadership styles (transformational, transactional, passive-avoidant) and three outcomes of leadership styles (extra effort, perceived effectiveness, satisfaction with leadership). Perceptions of team effectiveness were measured by the Team Development Indicator (TDI-short version, Bronson, 1991). The following major findings were identified: For both groups the intervention was effective as post scores in TDI were significantly higher than pre-test scores. Overall teamwork appeared in higher level after training, indicating a moderate change in professionals and a large change in students. Transformational and transactional leadership styles were displayed frequently in post training at the professional group, indicating a moderate change, where passive/avoidant behaviors decreased significantly. Similarly, transformational leadership and the decrease of passive/avoidant leadership revealed a large change in post training at the student group. Significant difference found in students who perceived more frequent teamwork behaviors than professionals in post training. Female reported greater levels compared to male respondents in transformational leadership, and were prompt to develop those behaviors that generate satisfaction in followers. The category of below 22 years old exhibited less frequent passive behaviors and displayed the highest score in total teamwork. Also, the categories of 23-29 and above 35 years old made less extra effort. Professionals in a responsible position, with a working experience between four and eight years acquired lower level of teamwork behaviors. Also those who had changed more than three different working environments affiliated with higher level of extra effort behaviors.

Keywords: *leadership, teamwork, competencies, outdoor experiential training, development*

ΠΕΡΙΛΗΨΗ

ΑΝΑΠΤΥΞΗ ΗΓΕΤΙΚΩΝ ΔΕΞΙΟΤΗΤΩΝ ΚΑΙ ΟΜΑΔΙΚΗΣ ΕΡΓΑΣΙΑΣ ΔΙΑ ΜΕΣΟΥ ΠΡΟΓΡΑΜΑΤΟΣ ΥΠΑΙΘΡΙΑΣ ΒΙΩΜΑΤΙΚΗΣ ΕΚΠΑΙΔΕΥΣΗΣ

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(Υπό την επίβλεψη του Καθηγητή κ. Αθανάσιου Κριεμάδη)

Εξαιτίας των ραγδαίων οικονομικών αλλαγών που συμβαίνουν σήμερα, υπάρχει αυξημένη ανάγκη για ανάπτυξη στελεχών. Ανάμεσα στις παγκόσμιες επαγγελματικές δεξιότητες εκείνες που διακρίνονται είναι η ευελιξία και προσαρμοστικότητα, οι ηγετικές ικανότητες, η ομαδική εργασία και η στρατηγική σκέψη. Σκοπός της συγκεκριμένης μελέτης ήταν η διερεύνηση των ακόλουθων ερευνητικών ερωτήσεων: (1) Υπάρχουν άμεσες επιδράσεις της εκπαίδευσης στις ηγετικές δεξιότητες; (2) Υπάρχουν άμεσες επιδράσεις της εκπαίδευσης στις δεξιότητες ομαδικής εργασίας; (3) Υπάρχουν διαφορές ανάμεσα στα στελέχη και τους φοιτητές ή (4) διαφορές βάσει των δημογραφικών χαρακτηριστικών, όπως η ηλικία και το φύλο μετά το παρεμβατικό πρόγραμμα στις δεξιότητες ηγεσίας και ομαδικής εργασίας; Η μεθοδολογία που χρησιμοποιήθηκε συμπεριλάμβανε τον συνδυασμό ποσοτικών και ποιοτικών δεδομένων, μέσω των επαναλαμβανόμενων παρατηρήσεων. Το δείγμα ευκολίας της έρευνας αποτελούνταν από δυο προκαθορισμένες ομάδες (επαγγελματικά στελέχη, n=51) και (προπτυχιακοί φοιτητές, n=30). Η εκπαίδευση είχε διάρκεια 2 ημέρες και περιελάμβανε μια σειρά από κατάλληλα σχεδιασμένες υπαίθριες δραστηριότητες μικρών ομάδων που συνοδεύονταν από ανατροφοδότηση. Οι ηγετικές δεξιοτήτες μετρήθηκαν με το ερευνητικό εργαλείο Multifactor Leadership Questionnaire (Bass & Avolio, 1997), το οποίο περιλαμβάνει τρία είδη ηγετικής συμπεριφοράς (μετασχηματιστική, συναλλακτικής, παθητικής) και τρία αποτελέσματα της ηγετικής συμπεριφοράς. Αντίστοιχα, η ομαδική εργασία μετρήθηκε με το ερωτηματολόγιο Team Development Indicator (Bronson, 1991). Συνοπτικά τα κύρια αποτελέσματα της μελέτης ήταν: Η βιωματική εκπαίδευση έδειξε να είναι αποτελεσματική, με τις δυο ομάδες να εμφανίζουν υψηλότερα σκορ στην δεξιότητα της ομαδικής εργασίας, επιδεικνύοντας μια μέτρια επίδραση στην περίπτωση των στελεχών και μια μεγάλη επίδραση στους φοιτητές. Παρόμοια, τα στελέχη σημείωσαν αυξημένα σκορ στην μετασχηματιστική και στην συναλλακτική ηγετική συμπεριφορά και αντίστοιχη μείωση της παθητικής ηγεσίας. Στην περίπτωση των φοιτητών, υπήρξε αύξηση της μετασχηματιστικής και μείωση της παθητικής ηγεσίας. Οι φοιτητές συγκρινόμενοι με τα ηγετικά στελέχη εμφάνισαν υψηλότερα επίπεδα ομαδικής εργασίας. Οι γυναίκες ανέφεραν μεγαλύτερα ποσοστά μετασχηματιστικής συμπεριφοράς και ήταν πιο πρόθυμες να τις υιοθετήσουν, ώστε να αυξήσουν το επίπεδο ικανοποίησης των συνεργατών τους. Η ηλικιακή κατηγορία κάτω των 22 εμφάνιζε χαμηλότερα ποσοστά παθητικής ηγεσίας και υψηλότερο επίπεδο ομαδικής εργασίας. Επίσης, οι ηλικίες των 23-29 και πάνω από 35 χρονών έδειξαν ότι καταβάλουν λιγότερη προσπάθεια. Τέλος, τα ανώτερα διοικητικά στελέχη με εργασιακή εμπειρία από τέσσερα έως και οκτώ χρόνια είχαν χαμηλότερο επίπεδο ομαδικής εργασίας, και εκείνα τα στελέχη που είχαν αλλάξει περισσότερα από τρία εργασιακά περιβάλλοντα έδειξαν να καταβάλλουν μεγαλύτερη προσπάθεια.

Λέξεις κλειδιά: *ηγετικές δεξιότητες, ομαδική εργασία, υπαίθρια βιωματική εκπαίδευση, ανάπτυξη*

DEDICATION

To my lovely family

and all those people who face real life experiences

and become stronger

To Taygetos mountain for its inspiration

To my new great loves Takis and our lovely newborn baby

ACKNOWLEDGMENTS

I would like to express my gratitude to my advisor, Dr. Athanasios Kriemadis, for providing me the guidance and support to complete such a long and lonely project.

I would like to thank my committee members, especially Dr. Andonios Traylos for the detailed recommendations he provided to me and the rest of the members for their time and intelligence that were greatly appreciated.

Finally, I would like to thank my family and friends for accompanying me at the long life journey and support all my decisions and expectations.

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LIST OF ABBREVIATIONS

	FULL TITLE OF ABBREVIATIONS
AL	Adventure Learning
AT	Adventure Training
CAT	Corporate Adventure Training
CCL	Center for Creative Leadership
EBTD	Experience Based Training and Development
EG	Experimental Group
ES	Effect Size
MLQ	Multifactor Leadership Questionnaire
NOLS	National Outdoor Leadership School
OCT	Outdoor Challenge Training
OET	Outdoor Experiential Training
OMD	Outdoor Management Development
OT	Outdoor Training
PD	Professional Development
PS	Professional Sample
RC	Rope Courses
SEER	Symposium on Experiential Education Research
SS	Student Sample
TDI	Team Development Indicator
WE	Wilderness Expedition
WEA	Wilderness Education Association

CHAPTER I

INTRODUCTION

'Tell me and I will forget, show me and I may remember,
Involve me and I will understand'.

Confucius, Chinese philosopher

Outdoor Training Definition

A wide variety of terms have been used to describe different outdoor adventure training or development related programs. For example, the term Outdoor Management Development (OMD) is used in the U.S.A. Equivalent terms are Outdoor Experiential Training (OET), Experience Based Training and Development (EBTD), Corporate Adventure Training (CAT), Adventure Learning (AL), Adventure Training (AT), Team building programs, or/and Outdoor Challenge Training (OCT). Other examples of terms are also used such as adventure-based counselling, adventure education and wilderness courses. However, despite the wide variety of terms used in this field of research, all of these adventure programs have one thing in common: they apply indoor or outdoor activities in the process of experiential learning through the participation in a sequence of activities-challenges in an outdoor setting.

This new training approach, parallel to the growth in management development, is seeking to improve team performance and develop managerial competencies. Underpinning the aspect that leadership skills can be learned and team spirit developed by exposing employees in an outdoor traing progran (Anonymous, 2003). This type of programs represents a form of experiential learning, or learning by doing and then reflecting on what has happened (Greenaway, 2002), which has its roots in the Outward Bound movement in Scotland inspired by Kurt Hahn. The program was originally designed to build personal qualities as well as to discover

meaning through personal and group encounters with unfamiliar situations whilst they were under psychological and physical exertion. As Kurt Hahn mentioned, adventure training offers a variety of intense experiences in a natural setting, that produce progressively complex and difficult challenges for an individual to master and go on to the next challenge. Through this kind of active involvement of trying to succeed in accomplishing the given tasks, the individual builds a sense of self-worth (Hahn, 1970).

A deeper viewpoint of the self-worthiness effect is given by the representative goals which such an outdoor team building and leadership training offers: (a) discovering of participant's strengths and weaknesses, (b) testing of his/her limits (in reality they are far broader than considered), (c) working together as a team, (d) having fun, (e) facing the essence of who he/she is and what he/she is made of, (f) having the opportunity to break through barriers within himself/herself, and also between himself/herself and others (Dubrin, 2007). Another description of outdoor experiential training is given by Thompson (1991) who stated that «is a blend of cognitive learning plus subjective interpretations based on the learner's feelings and values» (p. 46).

As described by Gass (1993) it is an active process, involving the learner being placed in unfamiliar environments, outside his/her positions of comfort and into states of dissonance. Most of the times, outdoor activities take place outside of the usual work context and everyone involved has to negotiate new situations and to respond to challenges which they are unfamiliar to him/her. They have to use personal resources in different ways and adopt new roles, strategies, and skills, which are not used in everyday life. Given that circumstances, initiative, stamina, fear, self confidence, talents and vulnerabilities emerge that may not have been previously

recognized. In this context, teamwork and cooperation are fostered through activities that cannot be successfully accomplished without a high level of communication.

Outdoor training occurs in a great diversity of settings, ranging from wilderness expeditions to a high tower Odyssey course and rope courses. Some of the leading provider organizations are the National Outdoor Leadership School (NOLS), Outward Bound, Wilderness Education Association (WEA) and universities. One well established type of outdoor training since the early 1960s, in the United States, is the Challenge course. It concerns a set of activities/challenges usually undertaken outdoors and completed by team working. Synonymous terms include high ropes course, low ropes course, initiatives, group initiatives, and group initiative activities. The design of most challenge course programs fits within the following categories: Adventure Recreation, Personal Growth and Enrichment, Developmental and Treatment Services.

Giving the definition of high rope courses, as expressed by Attarian (1990), are defined as a set of obstacles of elements suspended by steel cables, ropes, and specialized belay systems, usually from large trees or utility poles. Elements of these courses range in height between 20 and 60 feet. In comparison, low rope courses are a series of activities and initiatives that foster group participation, teamwork, leadership, trust, communication, and problem solving and are carried out in low height from the ground. Due to the diversification of the height, learners tend to believe that there is more risk in a high ropes course, which is a perception as stated by Thompson (1991). The truth is that the risk is about the same due to the use of proper safety equipment.

For a better conception of a typical outdoor training course, it should be useful to introduce some represented low element activities. To begin with, a very popular outdoor activity is called the Spider web, where a group of participants has to get all

the members of each team through the web, which is a net made by a rope strung between two trees, containing varying sizes of holes. The challenge in this activity is to manage to pass through without touching it and use each gap in the web only once (Steinfeld, 1997). The key point of success is the creation of a plan that turns to be an advantage **to** the participant's physical ability and size so that the groups lift, pass, and spot participants in order to get them through.

Another activity is called Stepping stones, during which a team has to move forward from one point to another by using only the materials provided such as different size rug pads, without touching the ground. Participants are given one prop less than their number. Some facilitation rules that Rohnke and Butler (1995) suggest for this particular activity are: (a) anyone touching the ground must return to the starting point, (b) there is only the option of moving forward and not going backward, or (c) props should only be used once. All these alternative rules ensure more team than individualistic approach, as the main goal of these activities would be to increase teamwork and the level of synergy among the members of the team.

The selection of the relevant activity and the variation of its rules and penalties depend**s** on the specific developmental goal of the course. Based on the aims of the program, when for example providing adventure education, participants are given safe but challenging opportunities to solve group initiative problems and climb on the higher elements. There is very little briefing or debriefing of the experience and the emphasis is on the participants' level of enjoying themeselves. Due to the fact that program goals become more diverse, in the case of management training or professional development, the course becomes more complicated in order to meet the needs of the group. Among the different natures of the program there are some common outcomes or benefits that participants in a challenge course can gain such as: (1) self-respect and respect for others, (2) improvement of communication skills, (3)

creation of a sense of physical and emotional exhilaration, (4) challenging personal comfort zone, (5) developing leadership skills, (6) fear management, (7) increasing teamwork, (8) learning conflict-resolution strategies, (9) better problem-solving skills, (10) safety awareness, (11) planning and organization skills, (12) caring and compassion, (13) improvement of physical fitness and coordination, and (14) stress-management skills (Horne, Crossley, & Rogers, 2005)

The recognition of the multidimensional use of ropes courses is also mentioned by Schirich (1996) who adds that a ropes course can be used as a metaphor which can diagnose a group strengths and weaknesses as they collaborate to solve a problem given in each activity/challenge. All learning is using the principles and the framework of experiential education. Additional desirable outcomes such as increased trust, developing acceptance, setting goals, brainstorming ideas and task accomplishment are cited in a research conducted by Goldenberg, Klenosky, O'Leary, and Templin (2000).

Important components in the total effectiveness of such courses are program design and delivery principles as they play a key role meeting training outcomes with success (Haras, Bunting, & Witt, 2005). Without explaining in detail the actual program of intervention, Neill and Richards (1998) stated that it is difficult to determine the process programs used to achieve their outcomes and therefore evaluate the effectiveness of various approaches. Quoting, at this point, that so far, very few studies have focused on how program outcomes have been achieved.

The great significant role of evaluation emerges from the fact that in the past, most of the evidence of the outcomes of CAT and EBTD programs was anecdotal and business authorities question the quality of their effectiveness. However, Priest (1996) draws our attention to the main aspects of evaluation. To begin with, he states that programs should involve selecting a single construct (e.g. Teamwork) while

examining the variety of other elements of the program such as duration, location, design, assessment, etc. and their contribution to the acquisition and maintenance of benefits over time. The method of using quasi-experimentation is considered the best sampling type. Another issue in methodology is that because interventions applied to small size groups, non-parametric statistical methods are required for the analysis of data, which is generally less well accepted than parametric statistics. In addition, as long as effective programs customize content to best respond to the participants' needs, researchers should avoid mixing several groups with the same adventure content.

Another problem with this approach is that it fails to take the difficulty of assessment and transferability of the outcomes into account. The majority of experiential learning programs aim to develop soft skills such as leadership, teamwork and group problem solving. Since the measured outcomes are referred **to** primarily as human qualities, they are not easily addressed in a quantitative manner. Furthermore, due to the limitation of available valid and reliable measurement instruments, the use of qualitative methods appears to be more preferable (Priest, 1996). Another problem is that outdoor training can be viewed as a "feel good" experience, or a day away from the office. For this reason it is important to ensure a follow up session, debriefing or even consulting services as during these methods connections are made back to the real worlds (Wilson, 1997).

Background of the problem

The importance of Professional Development (PD) is strongly supported by Riga, Betties, and Sullivan (2003), reporting that corporations invest more than $2.2 trillion on education and training annually. Respectively, it is estimated that about $10 billion is spent almost exclusively on leadership development programs (Hannah &

Avoid, 2010). Outdoor training has been established as one of the most valuable human resources management ideas, in parallel with the growth in management development, with special focus on team performance and managerial competencies (Anonymous, 2003). It offers a valuable developmental tool for personal growth through direct experience, as the participants have to solve challenges in real time. In this learning process the reflection stage uses metaphor as a crucial element for the transferring of adventure activities to real world situations. The combination of empirical –based research and theories in the field of leadership and teamwork competences would compose the framework for the evaluation of the effectiveness of this particular outdoor training program.

Problem statement

Results from meta-analysis and systematic reviews in the field of the effectiveness of outdoor training programs mentioned that few studies focused on how program outcomes have been achieved. Additional issues are the limitation of available valid and reliable measurement instruments as well as a greater focus on other types of measurement methods than reactions measurements. Based on an official report by the American Society of Training and Development (Van Buren & Erskine, 2002), 78% of the surveyed organizations was using as evaluation method reaction measures, 32% learning, 9% behavioural, and only 7% was using results measures. Furthermore, most of the applied population in the field of the outdoor training and leadership development were students and principals, respectively. Few training programs were applied to the top management, and according to a meta-analysis of Collins (2002) only 13 studies out of 83 were structured for top managers. What is also mentioned is that there is a need for further research findings on individual learner differences as a result of the training by applying pretest-posttest

designs. Finally, there are a limited number of nationally published studies referring to Greece, in the outdoor experiential training (OET) programs and an acute lack of research in the context of professional development through OET. Identifying the gaps existing in the scholarly literature, compared with the lack of relevant local research, the objective of this study is to measure the impact of a two-day outdoor training program of professional development on leadership and teamwork competencies.

Purpose of the study

The primary purposes of this study were to: (1) investigate the immediate impact of adventure training on learning outcomes, participants' experience on skill based competencies, (2) identify the weak and strong points of pre-existing team attitude and leadership through self assessment and key differences between the two samples (professional and student samples), (3) compare the individual rating scores with the group observation rating in case of teamwork before the training, (4) compare participants' post training scores in leadership with norms and ideal scores that are available from Bass and Avolio (2004), and (5) examine any differences in teamwork and leadership among participants, based on the following selected demographic characteristics: gender, age, education level, years of work experience, annual salary, number of different workplaces, and years in a position of responsibility.

Research questions

The research questions to be examined in this particular study were the following:

1. Are there any immediate effects on teamwork as a result of the training?
2. Are there any immediate effects on leadership competencies as a result of the training?
3. Are there any differences between the professional and student group in post teamwork and leadership scores?
4. Are there any differences among participants of each group in post teamwork and leadership scores based on demographic variables?

Hypotheses tested

1. If the intervention is effective, participants' post scores in teamwork would be significantly higher than pre-test scores.
2. If the intervention is effective, participants' post scores in leadership would be significantly higher than pre-test scores.
3. There will be no significant differences between the professional and student group in post teamwork and leadership scores.
4. There will be no significant differences among participants of each group based on demographic variables (gender; age; education level; years of work experience; annual salary; number of different workplaces; years in a position of responsibility).

Significance of the study

Contemporary companies seem to take a more global approach because of the rapid economic growth. In trying to cope with the complexity challenges they make major efforts in restructuring their business or even re-engineering the whole operating model. As a result, companies apply new strategies for growth with a significant impact on the employees' working environment. At the same time, firms encounter issues in finding the proficient professionals to fill positions due to the deficiency of accessible talent pools (Ernst & Young, 2012).

Some of the factors with a major contribution to the facing challenges are the progress of information technology, the increased level of competitiveness and the changes in consumer preferences. In such a climate of rapid change, common areas of global competences focus on business knowledge which is related to understanding the external environment and how the company fits into it. On a personal level, it is essential for an individual to be adaptive to changes and uncertainty. At the interpersonal level, there is a need for abilities in effective communication, management of conflict and multicultural operating (Ogrean, Herciu, & Belascu, 2009).

The significance of this study is that it adds some evidence of the effectiveness of outdoor training as a useful diagnostic developmental managerial tool. More specifically, it aims to investigate the immediate impact of adventure training on learning outcomes, participants' experience on skillbased competencies. Both participants top management and undergraduate students who study management, had the opportunity, to estimate their pre-existing level of teamwork and leadership competencies through an active involvement in real situations and to identify areas for improvement.

CHAPTER II

THEORIES AND MODELS OF EXPERIENTIAL LEARNING, LEADERSHIP AND TEAMWORK

Theories and models of experiential learning

The theory of experiential learning is to emphasize exactly the central role that experience plays in the learning process. There are several theoretical frameworks and models which will be presented and analyzed in the section below which will give a better apprehension of the process and the key elements of experiential learning environment. John Dewey is considered to be one of the forefathers of the experiential education movement (Warren, Sakofs, & Hunt, 1995). The conceptual model of Dewey's philosophy of experiential education is presented below (see Figure 1).

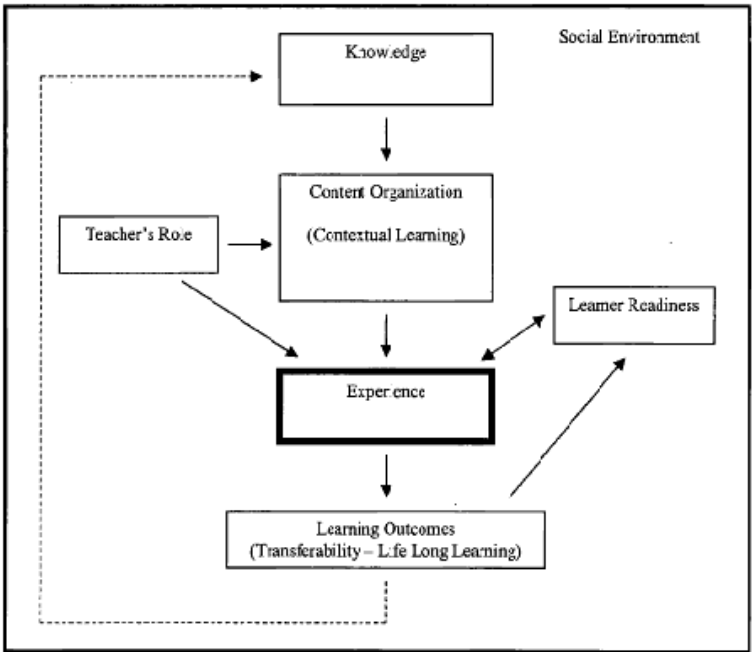


Figure 1. A conceptual model of Dewey's philosophy of experiential education

According to his philosophy everything occurs in a social environment in a critical manner, where a lot of interactions are taking place and relationships are being

developed. Knowledge is what participants gain from their experience. Referring to the content of the organization, it should emphasize on placing the participants in real life situations allowing them with this method to learn from their experience and gain knowledge that they can apply in future situations. In the process of experimental education the facilitator's role appears important as he/she estimates the learners' capacities, the level of their readiness and their previous experiences and determines the appropriateness of the environment which best responds to their needs and leads to growth. The researcher argues that personal experience is a fundamental element for everything in life, and depends on the quality of the experience which determines the transferability of the knowledge to new situations. Finally, he adds the importance of the learning outcomes that should be oriented to the growth of the learner and to a lifelong learning attitude (Grady, 2003).

David Kolb is also recognized by most as one of the key figures and contributors in the development of experiential learning theory. According to Kolb, learning, change and growth are best facilitated by an integrated, active process that involves a number of steps as part of the Experiential Learning Cycle (Figure 2): (a) begins with a concrete experience, (b) leading to reflective observation, (c) followed by expansion through abstract conceptualization, where formulating ideas on how to improve one's performance or outcomes, and (d) concluding with active experimentation and application when a comparable experience or situation is next encountered (Kolb, 1984).

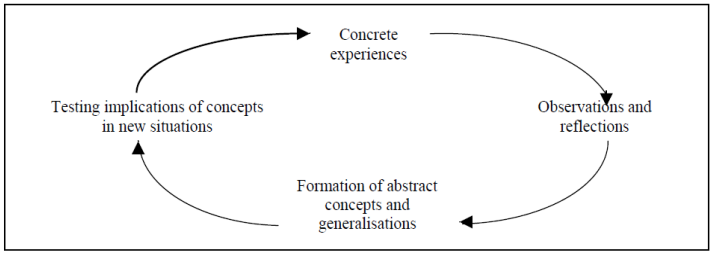


Figure 2: The Experiential Learning Cycle (Kolb, 1984)

Without a doubt, Kolb's theory is still up-to-date and continues to exercise considerable influence on management learning and education process by providing both explanatory strength and practical significance. For the same reason, according to Kayes (2002), experiential learning theory is based on and confined to the human experiences. The special focus on the experience is well explained by Kolb's model providing six assumptions: (a) learning is a process and not an outcome itself, (b) derives from experience, (c) requires an individual to resolve dialectically opposed demands, (d) is holistic and integrative, (e) requires interplay between a person and environment, and (f) results in knowledge creation. Giving a distinction between theories of action and theories in use, Kolb (1992) referred to the important role of the reflection element in the experiential learning process, where facilitators may leave less time than needed for debriefing, group discussion, counselling or other forms of the reflection phase. Their choices of actions taken are more depended on each reflection case rather than theory implementation. In this way, practitioners examine the different values existed in practice within learning environments.

An additional concept of turning experiential education into praxis is provided by Breuning (2005), who defines the meaning and the context on details of praxis. Specifically, praxis starts with theory (an abstract idea) and then translates it into purposeful action. Under this consideration, praxis has the following characteristics: reflection, activation, creativity, context, purpose and social structure. This view is also supported by Illeris (2007), who conceptualizes reflection as a cognitive process where the learner transfers knowledge from the experience and develops a new set of background perspectives. Through this process of critical reflection an individual challenges his assumptions and his values.

Another representative model of action-reflection cycle, is Joplin's (1995) providing a good example of the key stages in most experiential education models,

which are: focus, action, support, feedback, and debrief. During the focus stage, the priority is to provide an explanation of the activities, develop in this way a learning contract and set the goals of the program. In the action stage, the learner participates in an unfamiliar situation of perceived risk where he has to solve a problem. Support and feedback stages are present throughout the entire learning experience. The importance of a supportive and safe environment is the key component for the appropriate environment for the learner to take risks to solve the problem at hand. Moreover, feedback is necessary for the learner to have all the information needed for success. In the final stage, debriefing plays the role of recognizing, articulating and evaluating of the learning earned.

A conceptual framework is also given by Carver (1996) where the learning environment is connected with the program and setting characteristics which affect the personal experience. This experience involves any combination of senses, emotions, physical condition and cognition (e.g. Problem solving). Some program pedagogical principles with a determinant role in experiential education are authenticity, active learning, drawing on student experience and connecting experience to future opportunity. Additionally, the researcher refers to the characteristics of the setting such as resources and behaviours, including behaviours modelling and language used to describe the environment. Special focus is given on the role of personal experience in learning, except for achieving the main values of caring, compassion, communication, critical thinking, and respect for self and others, as well as in developing a power of change, a sense of community and the appropriate skills, knowledge and ability to apply learning. The framework (see Figure 3) provides a useful tool for organizing and communicating thoughts about program development and evaluation, in a structured way for applying effective experiential programs.

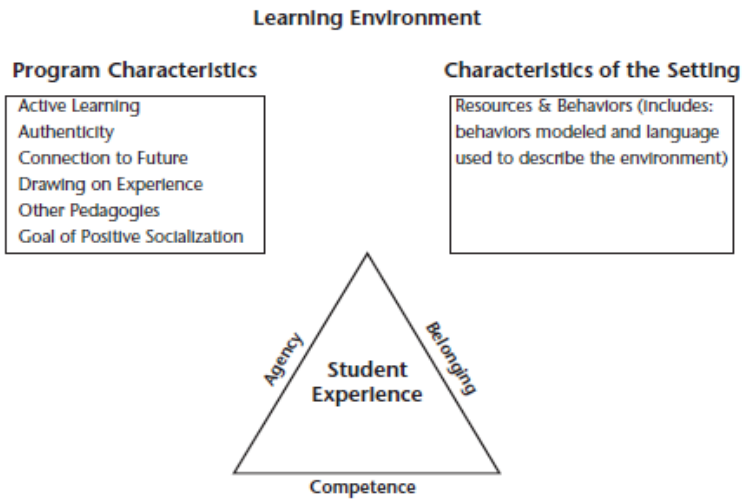


Figure 3: Conceptual framework of the learning environment (Carver, 1996)

Being influenced by Kolb's model and based on the definition given by the Association of Experiential Education researcher Itin (1999) proposed another holistic model entitled 'Diamond Model of the philosophy of experiential education' (Figure 4). The main variables of the experiential process included the transactions between the teacher, the student, the learning environment and the subject matter. He defines a holistic philosophy where carefully chosen experiences supported by reflection, critical analysis and synthesis are framed in such a way to encourage the learner to take initiative, make decisions and have an important input in the results. The whole model is describing a teaching process, where there is a shared experience between the learner and the teacher. Specific emphasis is given to the empowerment role of teacher in the learning process by providing students more opportunities for interaction in the learning process.

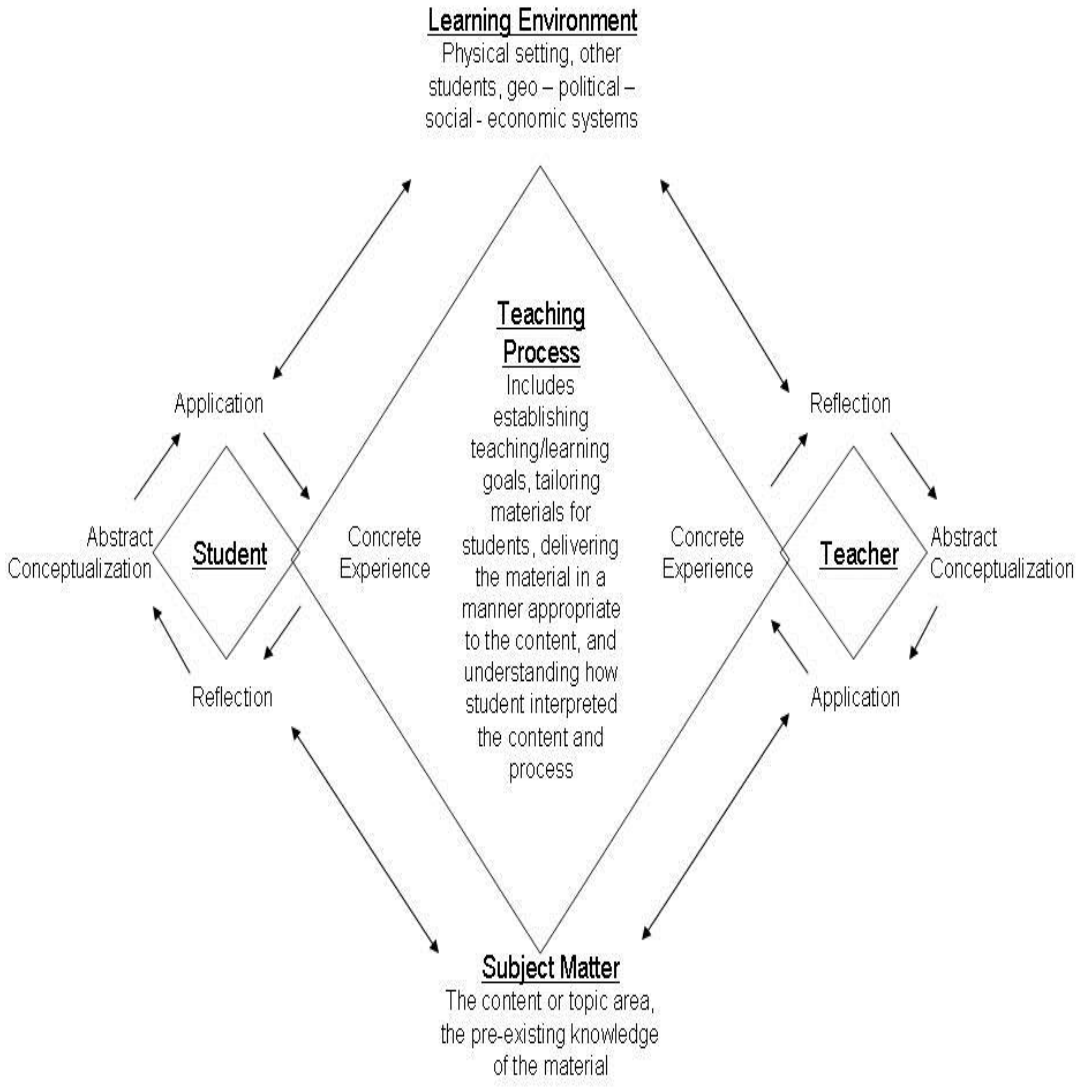


Figure 4. Diamond Model of the philosophy of experiential education (Itin, 1999)

Theories and models of outdoor training

As long as outdoor training (OT) is a specific application of experiential learning, the theoretical models associated with this type of learning will be explored in the next pages. The broad use of the term OT is often equated with outdoor education. In a review by Neil (2004) three models appeared to have a major contribution to outdoor education theory, the Outward Bound Process model (Walsh

& Golins, 1976), the Foundation of Outdoor Adventure in the UK (Barret & Greenaway, 1995) and the Learning combination Lock (Beard & Wilson, 2002).

Based on Walsh and Golins' model (1976) main factors determine the system framework of such programs as follows. First and foremost each participant should be motivated to take part in various problem-solving tasks. These tasks are structured learning situations provided by the instructor and take place in a unique natural and prescribed social environment (small groups). The learner through active involvement achieves a state of adaptive dissonance, by being able to master new skills in the given task. As a consequence of mastery, Walsh and Golins's model which follows in Figure 5 provides a holistic picture of how an experiential education program and its particular elements might be designed.

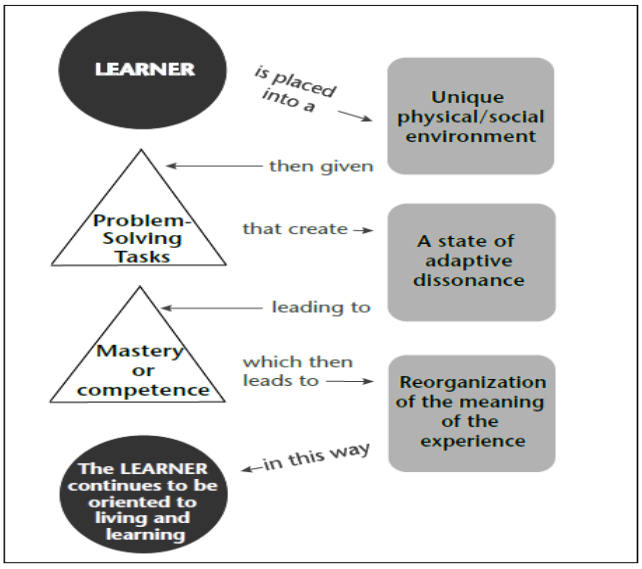


Figure 5. The Outward Bound Process Model (Walsh & Golins, 1976)

Another conceptualization presented by Barret & Greenway (1995), which adds significant contributing factors such as the natural setting, the group of participants, the staff-instructors and the learning climate. Regarding the learning climate, it encompasses the program philosophy, the core values and its aim and objectives. Besides these factors, Beard and Wilson (2002) propose the learning

combination lock model with a range of different experiences taking place in the external environment. Except for the place and the intervention elements and the participants' internal environment, they also take into consideration emotions, forms of intelligence and the way of learning.

Furthermore, the role of dramaturgy as a method of program design is mentioned by Martin (2001a) adding that it is used by instructors to integrate and link the variation of social, physical, creative and reflection activities. The planning process of this dramaturgy wave model consists of five stages: (1) the creation of the main theme, (2) the formulation of the scenario, (3) the content of dramaturgy (chosen activities), (4) the completion of the scenario (any rules or penalties of each activity), and (5) the dramaturgy of the course, where during the course instructors observe and react to the needs of participants.

Traditionally, Outward Bound courses have involved mainly physical outdoor activities, which were sequenced, briefed and debriefed as part of the adventure wave. The adventure wave model (Figure 6) as described by Schoel, Prouty, and Radcliffe (1988) itself has three main components that shape the facilitator's role during the experience called briefing, leading and debriefing. More specific, in the stage of briefing, the participants are provided with the information needed, much of it on safety and share information, where there is give and take, goal setting, clarification and framing. The meaning of briefing is important as it is related directly to the participants' involvement in the upcoming activities. In the leading stage, instructors challenge and confront participants, put pressure on the group to make decisions and it is considered a great opportunity for growth as well as diagnosis, through this active involvement in an adventure program. Debriefing is the evaluation stage, where the group members share their experience in the given activities by focusing on the what

they did, what the meaning was and what is next, what to keep, and what to improve. This discussion or processing of the activity can lead to related counselling issues.

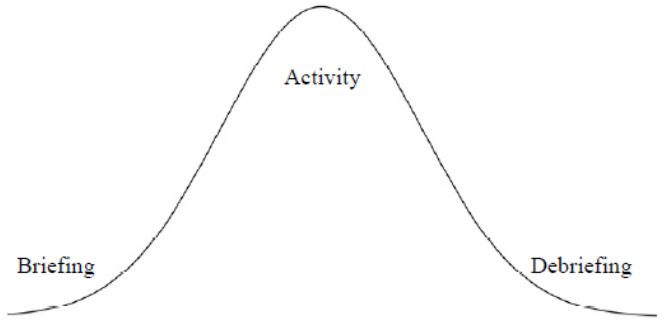


Figure 6. The adventure wave model for experiential facilitation (Schoel, Prouty, & Radcliffe, 1988)

Concerning the group development and dynamics issues, Attarian and Priest (1994) suggest the most appropriate leadership style to use within a group during each of the five stages of group development which are forming, storming, norming, performing and adjourning. During the forming stage a great deal of time and effort are invested in building relationships among the members of the group, including facilitating healthy interactions, encouraging members to clarify their expectations and creating a comfortable atmosphere of sharing yet with a less direct role. In the passing to the storming stage, a lot of conflicts take place and with a democratic role there is a need to balance the adaptation of goals, the adjustment of roles, the restating of priorities and the refocus efforts on accomplishing the tasks as well as addressing the troublesome interpersonal issues that have arisen. The following stage of norming is more comfortable for the members as they have already established and followed group norms of behavior. The preferable leadership style in this stage is where the leader acts more like a peer or colleague, who encourage group discussions and supports members' efforts to work out their own ground rules for future behaviors.

Later, in the performing stage group members exhibit an increased team effort and begin to produce top quality work having the total control of the situation. Through a democratic approach the leader aim**s** to secure that the group will continue to perform as productively as possible in the given tasks. The role of the leader is to increase the level of involvement and to help group members to implement their decisions. The last stage is the adjourning where it is crucial to create a sense of closure for the experience by helping group members integrate what they have learned and apply it in the future. In this stage, an autocratic leadership style is preferable **to** focus more on the task and less on the relationship (Attarian & Priest, 1994).

Another useful model with implications in an outdoor training setting is Frauman's model of mindfulness (2010). The mindfulness concept by definition is expressed during the processing of information and is more likely to happen when a setting or situation is varied, interactive and involving, or when it facilitates perceptions of control, or when it appears relevant to one's interest and/or is perceived as unique, new and different. This proposed model includes four phases: the alignment of programming, communication factors used by administrators/staff, participant's interests, mental state and the consequences. In the first phase of the model, the communication context which needs to have a clear theme structure is emphasized oriented and adapted to what participants already know. In the second phase, seven keys are important: (a) introducing change, (b) using varying techniques to carry out information, (c) employing novelty, (d) using questions to enhance involvement, (e) facilitating participant control, (f) making personal connections, and (g) having a good orientation plan. Based on phase three, attention should be paid to participant interest and the level of potential fatigue which can be either cognitive or physical. Also, considering the mental state of the participant, a special focus should be placed on the level of openness to learning, as well as on the learning environment

and the variance of contexts, perspectives and new ways to behave. The last phase captures the training outcomes of this model approach, both at the organizational and personal level. Some desirable learning outcomes are knowledge recall, personal control, satisfaction, achievement and responsibility (Frauman, 2010).

Realizing the power of coaching as a professional tool of development, Gray (2004) supported that it's possible and optimal to combine aspects, both from adventure education and professional coaching, which expand the implication of coaching further than executive leadership sessions to those in the service of others, such as educators, managers and supervisors. The adventure coaching model (Figure 7) is defined as a structured approach to coaching that includes five steps: (1) geting the message, (2) leaving the familiar, (3) confronting challenges, (4) returning with a gift, and (5) serving others. In analyzing the process of the model presented, the participants may receive a message or a call, by which they are encouraged to leave a familiar comfort area, confront some challenge, and to return with some benefits such as new competencies, so that they may be more willing to serve others. In fact, during the participation in the adventure activities-challenges, the opportunity of interaction with himself/herself and others in a less familiar environment such as wilderness areas is given individually.

Figure 7. The Adventure Coaching Model (Gray, 2004)

Finally, a four-phase learning cycle model is introduced by Ritchie (2011) which can be seen in Figure 8. The first phase of the experience involves business simulations, projects and challenges that participants take part in. The second phase includes the reviewing process where practitioners facilitate and encourage individuals to reflect, describe and communicate their learning from the experience. This is completed throughout the day after each particular task is achieved and then the group shares the high and low points of their experience involvement. The third phase is the concluding one, which uses models, theories and concepts to draw conclusions from the past and current experience and then these are applied during the planning phase of the cycle. The last part of this learning model includes the planning phase which allows apprentices to apply what they have learnt from the previous experience so that they can develop and refine the next level challenge or process that they will undertake. Perhaps one of the most important elements of this experiential learning cycle is the reflective and reviewing phase. During this stage participants are reinforced to develop their own sense of effectiveness and self-awareness and also to identify areas for improvement for the next challenge ahead. This reflective time is empowering and is directed to how the individual can apply what has been learnt into the workplace.

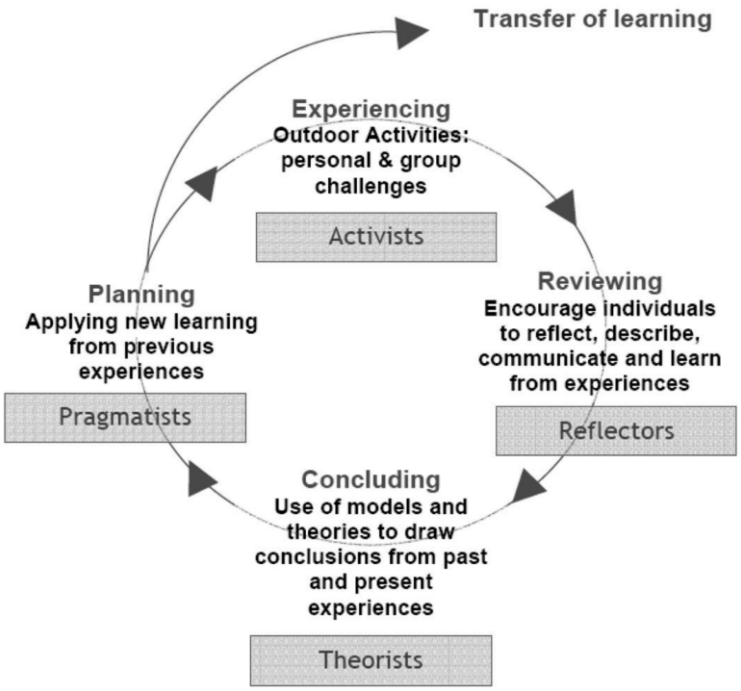


Figure 8. Experiential learning cycle (Ritchie, 2011)

Critical factors of effectiveness of a professional outdoor training program

This new training approach parallel with the growth in management development, aimed to develop team performance and managerial competencies. This professional development programs which us**e** the outdoors, have been applied in Master of Business Administration (MBA) programs and in corporate settings (Bank, 1994). The development of outdoor training was based on the assumption of removing people from their normal environment and challenging them through principally outdoor games. The effective learning process, applies an examination of what happened, and then reflects on the participants experience. By applying this framework, it was estimated that it is feasible for the skills learnt to be transferred back to the participants' work place (Martin, 2001b). The main difference of the chosen physical activities is that the leader/facilitator does not provide all the answers to the group, but the members of the group have to find and choose the most appropriate solution for each activity-challenge and through this process the

participants learn from each other. Adventure leaders introduce the activities in a way that allows the group to develop its own abilities, with guidance from the leader when appropriate.

The process of personal growth occurs through change as a result of direct experiences. In order for this process of reflection to be really effective, it requires an engagement from both sides the educator and the learner, which aims to increase knowledge, develop skills, and clarify values (Association for Experiential Education, 2004). Experiential learning occurs when several principles exist such as: (1) carefully chosen experiences supported by reflection, critical analysis and synthesis, (2) experiences structured in a way to require from the learner to take initiative, make decisions, and be accountable for the results, (3) the learner being actively involved by making questions, investigating, experimenting, being curious, solving problems and being creative, (4) learners are encouraged intellectually, emotionally, socially and or physically, (5) relationships are developed and nurtured, (6) since the outcomes of experience cannot be totally predicted, participants may face risk-taking and failure, and (7) opportunities offered to explore and examine their own values (AEE, 2004).

Krouwel (1994) argued that the use of experiential learning, and in particular the use of outdoors, confronts people with the results of their own actions which in turn provide important learning for life. Likewise Gair (1997) confirms the significance of the opportunity is given to participant to explore himself/herself and exposed at personal weaknesses and strengths that apply to real situations. The process of self-discovery is considered a meaningful and very productive way of adult learning.

Lindsay and Ewert (1999) at this point add that participants learn through active engagement, where they are empowered to form their own groups and are

granted with the responsibility for the supervision of that group. In case of a group with members that know each other well, being, for instance, employees of a company that collaborate on a daily basis it is obvious that some fixed group dynamics exist. In any group there is always identification of different roles and types of participants such as informal leaders, jokers, and criticizers and at the same time some stereotypes so tensions among members will also become evident. It is important for the game facilitator to take into consideration all that valuable information and use it in an appropriate way to make the learning opportunities richer and more completed (Dieleman & Huisingh, 2006). In other words there is a wide range of flexibility as the facilitator could vary the activities in accordance with the needs of the group, or model their flexibility of approach depending on the learning object he wants to achieve (Dwyer, 2006).

As the environment of outdoors is unfamiliar and novel for the participants, no skill or ability prequisites exist for the success of the challenges-games they participate in. Rather, the variety of participant abilities become a valuable contribution to solving the challenges and offer an opportunity for a discussion in the debrief session. Utilizing the distribution of participant's skills and abilities, the facilitator has the chance to manipulate the group dynamic**s** to force team members to participate in unfamiliar high or low interactive roles so that all learners reach the learning goals (Gabbei, 2004).

Also, the kind of relationships seems to play a significant role in the process of learning. Many researchers come in agreement of the value of the relationships, with Hogan (2002) and Luckman (1996) describing the need for the facilitator to be fully present and authentic as the learner is exposed **to** success and failure moments gaining from both cases. As a consequence, the role of the facilitator has to be supportive and avoid judgements that may influence the learner.

Within this approach, four relationships have been identified by Priest and Gass (1997) which appeared to be: interpersonal, intrapersonal, ecosystemic and ekistic. Analyzing interpersonal relationships, they refer to how people get along with other people including aspects such as communication, collaboration, trust, conflict resolution and problem solving. Intrapersonal relationships involve the way an individual (gets along with himself/herself) has persnonal oneness including self-concepts, confidence level and self-efficacy. The other two dimensions of relationships refer to the interdependence of living in an environment-ecosystem and the interaction between human society and nature environment.

Irvine and Wilson (1994) also determine the concern of taking risks mainly psychological and not actual. Through experiential learning methods, the perception of risk comprises a determinant factor of keeping participants sufficiently alert, challenged and involved to perform at their best. Referring to the level of risk, they mentioned to avoid being too low, where participants lose their sufficient alert, or the extent of their active involvement to perform at their best. Nor should it be too high so that participants feel threatened. The individual grows through reflecting upon problem solving and challenging experiences that push participant out of his/her 'comfort zones' (Gass, 1993; Nadler, 1995). The role of taking risks and facing challenges is an important determinant of the participants' level of active enrolment in the training. For instance, a person who is walking across a cable or falling from a higher point (a table or a pole) into the arms of teammates is likely to pay close attention to the experience. In contrast, during a typical indoor program, people are less likely to be forced to engage actively and participate because they tend to remain within their comfort zones (DuFrene, Sharbrough, Clipson, & McCall, 1999). Although the value of the experience is recognized, it does not guarantee that learning

will have occurred, as the reflection process is considered to have a major contribution to personal growth (Boud & Walker, 1991).

The significance of the reflection process is analyzed by Clements, Wagner and Roland (1995), indicating that real feelings and emotions are taking place in participating. Thus, the challenges that they have to solve are not role-playing but they are active situations that each participant has to cope with and there is no place to hide from feeling the experience. Respectively, Dainty and Lucas (1992) pointed out that an individual's behaviour is clearly visible during outdoor activities, and it is impossible to be hidden from any organizational and educational norms.

Additionally, Ghais (2005) underlines the importance of personal awareness of being able to bring confidence, trust and calm into the group to create optimal learning experiences for participants. There is an appropriate use of learners' experiences and incidents leading to learning processes rich in opportunities for development (Valkanos & Fragoulis, 2007). It has also been suggested that the existence of attributes such as excitement and emotional engagement, increase participants' level of involvement and consciousness (Priest & Gass, 1997).

Based on a systematic content analysis and synthesis made by Jones and Oswick (1993), some common characteristics are identified in OMD programs. Firstly, they set the improvement of personal understanding and the management of self and others as primary goals. Secondly, they aim at improving the degree of teamwork. Programs designed in a way to address the training needs of the organization the participants belong to. Their average duration is between five and seven days. Also, such programs include tasks technically novel and physically challenging, where instead of one best solution there is a high freedom of judgment. Lastly, notwithstanding their duration and increased level of complexity, about half of

the program time is still spent on structured review and feedback as constituting an important process issue.

Some of the previously mentioned characteristics are considered as key factors of the success of an adventure program. For example, a novel task/challenge is a determinant factor, as it ensures that the activity offered has unique content and uncertainty of outcome. People are placed in situations in which no group member appears to be an expert. Therefore in such a setting, adventures tend to equalize people, leaving behind the hierarchical barriers and apprehensions that often exist in organized groups. The purpose of the novel setting as Irvine and Wilson (1994) specify is to create a totally different and unfamiliar environment from the traditional norms existing in organizational and educational settings. While the activities should be unique and novel, they must also be related to actual workplace expectations and give the sense to the participants that the activities have a clear, job-related rationale. Through this reflection of the workplace characteristics, adventure programs become a superior alternative to traditional classroom training methods (Becker, 1998; McKenzie 2000).

Some additional elements provided by Project Adventure curriculum (Hirsh, 1999) such as a sense of adventure within a climate of enjoyment, suspense and unpredictability. High but accessible level of expectations are created by both the intrinsic and external forces, such as success orientation, an atmosphere of mutual support, freedom to make decisions, choices, and even mistakes. Lastly, an important element is the variety of personal contributions to problem solving during participation in outdoor activities that cannot ordinarily be solved individually.

For a clearer understanding of the specific process of OMD program, it is necessary to analyze the content and the role of facilitation. Rohnke and Butler (1995) present the facilitation model with the acronym A.P.P.L.E., which includes five steps:

(1) Assess, which helps in gathering information about the group through a variety of assessment techniques, such as who is the group, what they want to accomplish, the number of participants, the duration of the program, where the program will take place and other possible special considerations. (2) Plan, which selects the activities with a focus on participants' needs by designing specific scenarios for the activities being more relevant to the group to assist in the transfer of learning. (3) Prepare, the step where all the elements of the planning phase are put into place, so that everything is ready to go. (4) Lead, which relies on reacting effectively and involves actions such as creating the appropriate scenarios, presenting the rules and monitoring, observing the group progress, determining if an intervention is needed and debriefing the activities. (5) Evaluate, which is the last step and occurs after a program has finished, giving the opportunity to reflect on what happened.

In the whole process of outdoor training the most important element is the use of metaphor**s** for organizational behaviour. Whether the challenge is a high ropes course or going on a 2-day mountaineering trip, learners' decisions must directly affect the outcome. The use of metaphor is crucial in the learning process to allow for the transferring of adventure activities to real world situations, where essential decisions are needed, participants are being taught to think critically and solve problems. Much like Socrates, who supported that the process of learning is more important than the answer, outdoor facilitators strive to teach the skills and competences that are necessary for success and not teach answers (Dewar, 1997).

However, there are some additional critical parameters that have to be taken into account for a program to be effective, such as the clear determination of its objectives, recognition of the advantages that outdoors offer, understanding **of** the role of the facilitator and the participant in the learning process (Martin, 1992). In more detail, firstly the use of pre-program diagnosis through questionnaires or discussions

is considered a good basis for determining the objectives of the program. Being specific about the objectives allows the program to focus on the particular learning points, as outdoor training is mainly driven by process, not content. Secondly, recognizing the advantages of such a training intervention the participants get more involved and add value to the process of learning as they are given the opportunity to get valuable insights into what is hurting them back at the office. Thirdly, since outdoors do not depend on the experience itself but on the power **of** the insights drawn from them, it is important for the debriefing method from the facilitator perspective. Lastly, Martin (1992) highlights the significant role of the extensive information given to the participants before they attend the program. Communication of the goals and of the special nature of the outdoors setting increases the level of participant's commitment and increases the reflection outcomes.

The significant role of the particular learning process of outdoors and the implementation of appropriate facilitation techniques is confirmed also from Yeadon (1994) by emphasizing the different training approaches. The training strategy should be linked with outdoor training by affiliating the objectives of the program in a way that target to the developmental needs, which in turn will determine the nature of the activity. The core function of facilitation is defined by using practical activity to highlight the process rather than the task. Subsequently, through reviewing the progress of the participants, the facilitator enables them to link the learning inputs with similar situations they encounter at work. This training approach is considered to motivate the participants more and equip them to be better adaptive to changes so as to get better results.

Also, increased attention has been given to combining counselling with challenge courses and other types of adventure training, with a focus on group development. As researcher Hatch (2003) mentioned through the participation in a

challenge course, the participant may gain a broad understanding about group effectiveness which is exposed to a variety of group interventions and not only to verbal interactions among the members of a group. Also, the participants increase their behaviour and attitude by working together, learning about themselves and others, and generating openness and a sense of solidarity. Participants are able to recall all these valuable behavioural changes and apply them later in real life circumstances.

Defining Leadership

There are several approaches in understanding the meaning of leadership. A brief classification of the eleven major leadership approaches is given by Mackenzie and Barnes (2007). They start with the role of adaptation and innovation in the whole process of leadership and continue with the contingency theory which takes into consideration the various situational characteristics that a leader is exposed to. They further notice that a leader should adopt his/her style considering the important role of the readiness level of the follower. Another approach is taking into account the effect of multiple factors such as the organizational leadership structure, the authorization, the operational management, the exercise of power and external environments. They also include the trait theory contribution, where an early effort was made to identify the proper skills of a leader. Next to this approach they mention the leader-member exchange theory which emphasizes on the interaction between the leader and the follower.

Another model of leadership refers to the reward system that exists in an organization, concidering the leader environment and the results that leader team or unit brings. A more team oriented model of leadership concern the influence of leadership actions on team performance, by highlighting the significance of the

relationships. Also, through the path-goal theory emphasis is given on the ability of the leader to affect the followers' level of satisfaction, motivation and performance. Finally, it is proposed that leaders are able to inspire their follower to succeed beyond what an organization expects of them (Mackenzie & Barnes, 2007).

Leadership is distributed as there are many leaders, not just one. It lies not, solely, in the individual at the top, but in every person at all organizational levels and functions who, in one way or another, acts as a leader of a group of followers (Goleman, Boyatzis, & McKee, 2002). From that point of view it is proposed that leadership occurs at all levels of an organization's hierarchy (Charan, Drotter, & Noel, 2001; Lord & Hall, 2005). Based on these assumptions, an organization can make productive use of its human capital, by utilizing a substantial source of individual strengths. Underlying the fact that potential leaders can be found in the entire organization, top management should create the conditions for the development of employees. Thus, an organization should give priority to a more extensive view of interdependence and parallel to this, it should acknowledge that employee behaviors have significant consequences in the workplace as a whole (Harris, 2008).

Considering the central role of the process in leadership Rowe (2006) tried to explore whether there are any differences between leadership and management. In case of management there is a degree of control in the process of communication with some people being aware and others not, in contrast to leadership principles that everybody needs to be informed of. Another noticed distinction is that strategic leadership makes changes to what happens in the present, with an intention to create better conditions in the future of an organization, when strategic management tries to make predictions for the future and afterwards remodel the present. After all, regarding change which is implicitly connected with any organization, there are cases

when the already existing environment with a structure and culture is becoming weak to accept the progress of change. In this case, leaders, who are able to create and deal with change, are mostly inspired from their environment, unless there is intense resistance to change where they can ignore it.

Several different components can be identified as core to the phenomenon of leadership, being a process which involves influence, occurring within a group context, and involving goal attainment (Northouse, 2007; Pearce & Conger, 2003). Within this view of process, leadership functions combines all the efforts made efficiently and drives members of a group to remain and work together towards the achievement of common goals. From this point of view, a totally different power of group dynamics is identified, where every single member plays an active role in the shaping of leadership (Horner, 1997).

In the whole process of leadership the followers seem to play an important role as without them there is no evidence of a leader. As it is confirmed by Howell and Shamir (2005) that leadership is considered a function which includes leaders and their followers integrally. From this perspective, a leader with a transformational behavior profile approaches his/her followers by recognizing the individual different needs. Distinctively, he conforms to their personal and emotional needs and contributes, to a great extent, to their developmental growth and perfection (Dvir, Eden, Avolio, & Shamir, 2002).

As leadership is assumed to be a critical factor in the introduction and implementation of the transformations in organizations, there is an intensive need for change-oriented leaders. Those leaders that displayed transformational style of acting are in a position to facilitate change through adding value to the creation of a vision and inspire followers to be pursuers of that vision (Lievens, Geit, & Coetsier, 1997).

Theoretical Aspects of Leadership Development

An inclusive definition of leadership development is given by Brungardt (1996, p. 83). According to the researcher, it is described as every form of growth or stage of development in the life-cycle which is aimed to promote, advocate and reinforce the expansion of knowledge and of expertise levels. By enhancing individual's knowledge and skills he or she becomes more capable to advance the leadership disciplines and performance excellence. What is made clear from the above definition is that leadership development is a lifelong process of human growth and it does not end in a training program or workshop (Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000). Management and executive education are considered a big business, with fifty billion dollars spent annually and exclusively on leadership development (Raelin, 2004), with the leading European companies spending on average £3,336 per participant per annum on top management education and 42% of the companies having a corporate university as a provider (Financial Times, 2003*).*

By examining the forthcoming trends in the field of leadership closer, a technical report by the Center for Creative Leadership (CCL), including data from 247 senior executives around the globe, acknowledged a shift from an autocratic style to one that was more participating. In fact, planned success will depend on collaborative skills of the team rather than solely of the individual (Criswell & Martin, 2007). Changes in practices and in perspectives have also been noticed by Vicere (1998), referring to the most critical competencies that companies will need to compel in future through ongoing executive education and leadership development initiatives. Characteristically, research data from an international study of 400 companies estimated the new list of desirable competencies. In accordance with companies' appraisal, the competencies which are arise: adaptability, global perspective, strategic-

thinking, leadership, communication, change management, ability to learn, teamwork, customer orientation and business acumen.

Besides building leadership capabilities for present companies and organizations, crucial factors for their existence are supporting organizational changes, as well as building a common thinking and culture for innovation. An acquisition of these capabilities should provide assistance to the leaders to implement strategies and to communicate organizational vision, mission and values. Nowadays, the top three priorities for leadership development are the enhancement of working quality, the implementation of the strategy and the stimulation of entrepreneurship and innovation (Gonin, Napiersky, & Thorsell, 2011).

It is necessary for modern organizations and entrepreneurships to be adaptive and innovative in order to survive in the tenacious market competition. Regarding the variety of challenges the business world is facing, there is a compelling necessity to develop a high performance leadership culture at all levels through successful corporate change efforts. According to Kotter (2007), there are eight steps of the change process that lead to a successful organization transforming. He begins with the establishment of a sense of urgency in the organization, by analyzing the market situation and identifying opportunities or points of attention. Then, he continues with the guiding affiliation, by providing enough power to a team to lead the change and empower its members to collaborate. Moreover, the vision seems to have a major distribution, which should dispose an appropriate direction, the appropriate strategies to achieve the vision and the utilization of any available means for the diffusion of the vision. Equally, he emphasizes the meaning of empowerment that overcomes existing obstacles and exhilarates risk taking. He further supports the identification and reward of visible performance improvements. Another step of change is accociated with the proper adjustments that ensure more change to happen through systems, policies and

processes. In the final step, it is crucial for an organization culture to obtain new approaches, by recognizing and adopting the most successful behaviors and leadership actions.

Recognizing the role of leaders in coping with adaptive challenges, Heifetz and Laurie (2001) offer the principles of getting organization's people work in an adaptive environment. They begin with the identification of a changing context or even a creation of one and the adjustment of any distress that exists. An evenly important need for the company's leaders appears to be the appreciation of themselves, their subordinates and any contingent power of resistance. Leader tasks that play an important role in the regulation of distress seem to be the creation of an ideal environment where conditions ensure the debating of diverse groups, clirifying values and competing perspectives of the whole organization. Another task is providing the appropriate direction and influence, by forming the organizational norms and taking advantage of getting different people working together as a valuable source of creativity and innovation. Furthermore, a substantial issue is letting people take the opportunity to analyze and solve problems that arise from learning to undertake risks and responsibilities. Finally, the same authors (Heifetz & Laurie, 2001) identify the significant input that voices of leadership from below have by offering most of the times new approaches in the organization.

As regards to leadership development content, Campbell, Dardis and Campbell (2003) suggest five categories of qualities and skills. The first one refers to intra-personal attributes, including self-awareness, self-motivation and different values such as morality, integrity and fairness. The second category focuses on interpersonal qualities necessary for a leader to motivate, gain the trust and respect of his/her followers. Typical interpersonal qualities are effective motivating, readiness in decision making and effective communication skills. The third domain includes the

cognitive skills such as problem solving, adaptability and goal accomplishment. The next category focuses on communication skills and the last one on task-specific skills that offer great opportunities of expertise to the learner.

Leadership competencies

Recent studies (Mumford, et al., 2000; Ogrean, Herciu, & Belascu, 2009; Tubbs & Schulz, 2006) show that there is a link between leadership knowledge, skills and abilities with performance. These competencies become critical in shaping the transformation of an organization, inspiring the followers into a changed attitude and operating effectively in complex contexts of contemporary corporations. Regarding the necessity of acquiring the appropriate set of defined behaviors and skills, there will be a synthesis of those scholars with a focus on the determination and analysis of such leadership competencies.

Based on Deming's system profound knowledge (1994), where it is supported that everything is a system and we are part of it, Scholtes (1998) recognizes new leadership competencies. In a frame of a leader as systems thinker, he mentioned the ability to think in terms of systems and parallel knowing how to lead systems. He also points out the ability to incorporate the existence of a variety of work from the aspects of planning and problem solving. Another valuable ability is the consideration of the way we learn, develop and improve ourselves and lead successfully. Furthermore, it is important to understand human behavior and the reason of the way that they behave. At this point he adds the meaning of the interdependence and interaction between systems, the role of differentiation and human behaving. A leader should have the ability to identify how each of the above elements affects one another. Finally, he

emphasizes the importance of having a strong vision, right direction and staying focused on the organization (Scholtes, 1998).

An additional effort, to identify and classify leadership competencies, was made by Tubbs and Schulz (2006) within a global concern. They start with the understanding of the big picture, and move on by sharing with followers a common direction for the whole organization. Also, leader attitudes considered of a great value. Such attitudes are: recognition of diversity and determination of self-confidence. Analyzing the inspirational role of the leader further, they behave as servants by displaying sensitiveness, empathy, affiliation of the culture of giving and receiving feedback and building trust among the followers. They also emphasize the understanding of the meaning and the acceleration of innovation and creativeness in organizational processes such as decision-making. In the same degree, the authors mention the major distribution of a leader in driving the organization for change through actions such as continuous learning and providing the amount of support in any effort for improvement and change. Finally, teamwork and fellowship competencies appeared to be important regulators of organization effectiveness (Tubbs & Schulz, 2006).

As explained by Hernez-Broome and Hughes (2004) there are essential factors that contribute to the differentiation of the leadership competencies, for example, the increase of global competition, the growth of information technology, the need for flexibility and adaptation, the extended use of teams and the dissimilarity of employees' needs. Taking these major changes happening in the business world into account, future leaders should be ready to undertake roles such as talent investor, relationships constructor, change operator, master planer and global thinker.

Models of Leadership Development

The first model analyzed in this section would be the Leadership Challenge or as specifically called the Five Practices of Exemplary Leadership which was introduced by Kouzes and Posner back in 1995. With regard to that model, leaders and followers of the above five practices were identified. To begin with, leaders should challenge the process by looking for innovative ways to augment the organization. Furthermore, they are the main initiators of a shared vision as well as, key enablers of mobilizing others to act and collaborate inside an organization. Leaders also act like a role model and enhance the follower's level of commitment by recognizing and celebrating small successes. Finally, they encourage both the individual improvement and the teamwork effectiveness by thinking about the accomplishments made (Kouzes & Posner, 1995).

A capability-based developmental approach is introduced by Aitken and Higgs (2010) who distinguished the importance of developing leadership talent as a power for change. In their change leadership learning framework, the leader's way of thinking, acting and being (personality) influence the process of the development. Equivalently, the environment in which leadership is being practiced includes organization strategy, policies and culture and comprises the reflecting dynamic for change implementation. It is important for an organization to analyze what kind of changes they should make, the reason for those changes and the capability requirements to support them.

The same authors (Aitken & Higgs, 2010) recommend the top 10 capabilities by separating them in three domains of influence. The first domain is the thinking, including a broad access in team talents and having a clear understanding of their work environment, through deep observation and strategic thinking. The second is the acting, where a leader should be considered as a major learning culture contributor, having strong relationships and coaching skills. The leader's actions should provide

opportunities for consulting, facilitation and action learning through a healthy environment of constructive dialogue and relationships. In addition, change leaders need to establish high quality performance within the organization with their actions. The last domain of capabilities concerns personality characteristics such as the way of decision making style. Particularly, for the change leader it is important to develop three approaches, gaining some more time of examination of the problem, keeping an open mind about the potential resources and accepting the existence of contradictions. Other elements of personality include emotional intelligence, being a role model of authentic leadership as well as valuing and being able to work with diversity. The linking relation in the process of change between the leader and his/her organizational context is shown in Figure 9.

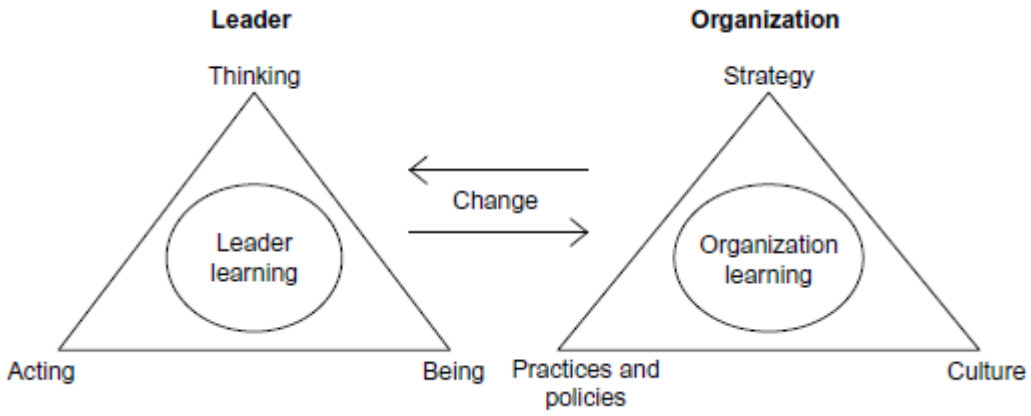


Figure 9. Change leadership learning framework (Adapted from Aitken & Higgs, 2010)

Another emerging model of leadership development is the Shared Leadership which was introduced by Pearce and Conger (2003). In this model, leadership is viewed as an outcome of networks of influence and relationships that aim to transform the existed norms, work practices and structures. As previously mentioned, it examines a social phenomenon process with less focus on formal leaders. In this case, leadership practices are less centralized but open and more collaborative. Based on the model, there are five leader behavior strategies. In the first instance, the aversive leadership strategy

fundamentally relies on coercive power and might be expressed through engaging by threatening or even oral punishment. Therefore, directive leadership depends on hierarchy power, which results in behaving in a commanding and ordering way. In the case of transactional leadership, the strategic tools of rewards and motivation are used. Another strategy is the transformational leadership, which provides a strong vision, sets high standards of performance, challenging the status quo and using inspirational communication. The final behavioral type in this model is the empowering leadership, which emphasizes self-development, teamwork and participative goal setting. However, there are few empirical studies that used the model of shared leadership and most measures are based mainly on self-reports.

An established perspective on leadership development is comprised within the Full-Range Leadership Model of Bass and Avolio (1997). This model was designed to give the profile of a leader in the total nine factors. With regard to transformational leadership, five factors are examined: trust building, acting with integrity, creation of inspiration, encouragement of innovation and coaching. Continuing with transactional leadership, two factors are explored the reward achievement and the monitoring **of** any deviations or mistakes made. Passive or avoidant leadership is also appraised in this model by identifying two behaviors, which are: if the leader waits for a situation to get worse and then takes action and if he/she avoids being involved in the problems arisen. Analytically, all the factors of the Full-Range Leadership Model as presented by MLQ Pty Ltd (2012) are shown in Figure 10.

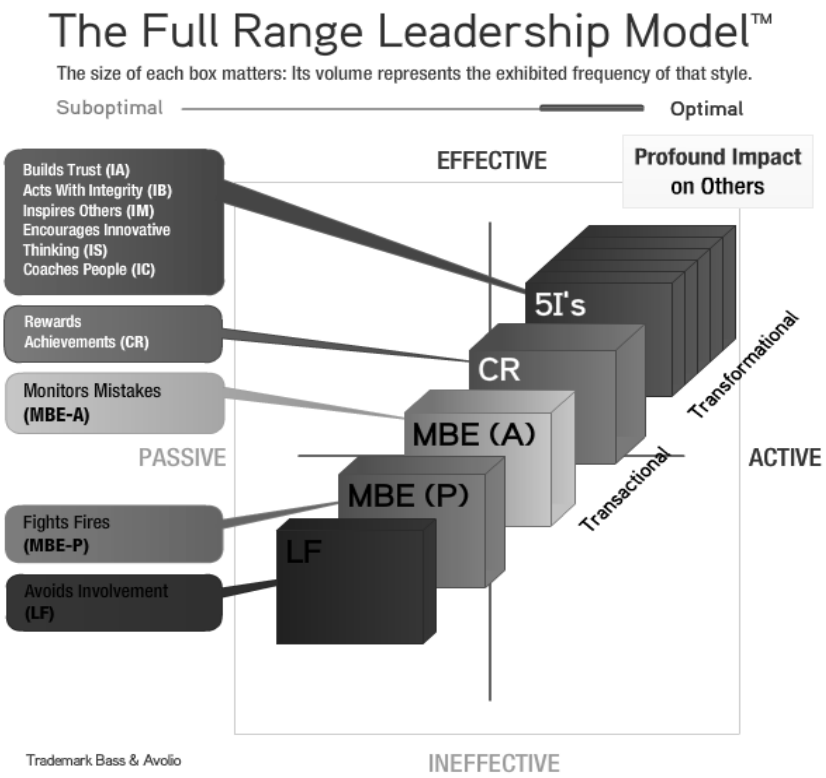


Figure 10. Full-Range Leadership Model (Adapted from MLQ Pty Ltd, 2012)

The distinction between transformational and transactional form of leadership is established in an earlier work by the same authors (Bass & Avolio, 1994). Within the transformational leadership framework, there is the perception of an exchange relationship between leader and follower. From the followers' point of view they experience more trust, moral judgment, inspirational motivation, commitment and they are encouraged to solve problems with a more creative and innovative way, without being afraid to take risks. On the other hand, the transactional form of leadership can be viewed also as a twofold relationship, in which followers receive reward or punishments depending on the standards that have been previously clarified in the organization. Also, within this framework a leader plays the role of monitoring follower's performance and take corrective actions in case of errors or deviations from the rules.

However, both transformational and transactional forms are essential components of the full range of effective leadership. For example, research findings of Parry and Sinha (2005) indicate positive effects of training in all five factors of transformational leadership competencies. The most increased factors appeared to be the idealized behaviors (10.2%) and the inspirational motivation (7.7%). They also found a positive correlation in the increased frequency between the contingent reward behavior (a transactional leadership dimension) and all five transformational leadership dimensions.

Other scholars focus on the job related outcomes of leadership, Lowe, Kroek and Sivasubramaniam (1996) underpinned a positive correlation between transformational leadership and outcomes such as job satisfaction and involvement. They also mentioned that those leaders who acquire a transformational profile of leadership achieved a better performance level with their subordinates. Furthermore, in a meta-analysis of Judge and Piccolo (2004) it was found that contingent reward in the business sector was highly correlated with the follower's job satisfaction and motivation as well as with the efficiency level of leaders.

Factors related with leadership

This session-section will summarize the personal dimensions such as gender, age, education level and tenure which impact leadership behaviors. A significant amount of research has focused on studying the differences among leaders based on demographic characteristics. In an earlier study of Carless (1998) in the banking industry in Australia, female managers were found to use more transformational leadership behaviors than their male counterparts. Specifically, female reported more frequent use of individualized consideration, were more willing to enable others to act and were more encouraging.

The findings which were further supported by a meta-analysis conducted by Eagly et al. (2003) showed women to be more transformational than men. Gender differences in leadership styles were indicated by Burke & Collins (2001), with female managers to use a more interactive way of management in comparison to males who called for transformational leadership. The findings from self-rating suggest that women practice more transformational leadership behaviors and use contingent rewards more often. Also, Andersen & Hansson (2011) have recently located similar differences based on gender, with female managers placing more emphasis on competencies such as communication and cooperation.

Similar attributes based on age and tenure are supported by Rasor (1995) who examined the relationship between personality preference traits of executive level and mid-level in the law sector and their leadership practices. His results reached the conclusions that younger leaders received higher evaluations by both superiors and subordinates. This view is further supported by Vecchio and Boatwright (2002) by adding that the combination of age and education level is a determinant factor of leadership behaviors. More analytically, they suggested that employees with a higher educational level and greater job tenure preferred less task oriented behaviors. This finding is in agreement with Barbuto, Fritz, Matkin, and Marx (2007) who supported that the educational level affects both transformational and transactional leadership styles, with significant differences mentioned in leaders with an advanced educational degree who scored higher.

Further support for such differentiations is provided by Fein, Tziner & Vasiliu (2010) in a research conducted in a Romanian sample. They found that managers 34 and under exhibited the lowest level on transformational leadership behaviors preference, while the younger managers preferred the more autocratic transactional styles of leadership. Empirical analyses and results from 190 managers from Emporiki

bank in Greece (Galanou, 2010) also confirmed that age and education level are significant predictors of leadership style preferences. Considering the education factor, the higher the managers' education level is the less preference for directive leadership. Accordingly, age and tenure, play a role as older leaders appear to rely on their years of work experience to make decisions disposing a greater degree of confidence which younger managers do not seem to possess.

The developmental value of work experience is well documented across a variety of empirical studies (Kabacoff & Stoffey, 2001; Kabacoff, 2002) with the younger employees to feel more comfortable in fast changing work environments and more voluntary to take risks and think over new approaches by displaying more enthusiasm and motivation.

A definition of teamwork

Summarizing those characteristics that are responsible for a team to be effective (Parker, 2008) twelve main issues were identified. First of all, all members should share a clear purpose and have an action plan. Secondly, the working environment should provide an informal climate of pleasure and comfort. Thirdly, it is important for a team to be encouraged for broad participation, giving the opportunity for each member to contribute his/her ideas. Listening skills are another crucial factor of effectiveness, referring to the ability of sitting back and allowing the appropriate time to analyze and evaluate the thoughts of a teammate. There must also be opportunities for civilized disagreement, where the team feels comfortable with the different opinions that are being expressed. The sixth element is the consensus decision through the principals of effective dialogue. Next to this parameter is an organizational environment that reinforces channels of open communication and trust among members.

Since effective teamwork includes task interdependence, it is crucial for roles and working assignments to be clearly specified and accepted by all members. Leadership of a team should be shared giving the opportunity to all members to contribute to the success of the team tasks. There is also a need for maintenance of external relations as an important resource of valid information and experiences coming from an expanded network of people. Lastly, it is important to recognize the meaning of the diversity and how a team could turn into advantage the different personality styles and the call for self-assessment and evaluation (Parker, 2008).

Research findings (Kiffin-Petersen & Cordery, 2003) suggest that due to the distinguished multi-roles found in almost any team, it is recommended for organizations to promote knowledge transfer and team skills development. These teamwork skills might combine: decision making; problem solving; effective methods of communication and negotiation; conflict management; and planning for success.

How leadership correlates with teamwork

Leadership is considered a network of relationships. For a top management team it is necessary to build qualitative working relationships based on dialogue, reaction, respect and trust, access to more information, openness to debate and to the development of multiple alternative solutions and sharing commonly accepted goals (Sheard & Kakabadse, 2004). In a research conducted in Taiwan by Wang & Huang (2009), in terms of group level performance, it was found that transformational leadership was positively related to group cohesiveness.

The significant inputs of leadership in strengthening team cohesion are further explained by Michalisin, Karau and Tangpong (2007). They mentioned that leaders have the power, through the development of team cohesion, to gain competitive advantage. They become adaptive to the modern times, where the current conditions

in any organization are affected by intense and frequent changes in top management team membership, due to restructuring, mergers and acquisitions.

Further support of leadership related team outcomes is provided by Mannheim and Halamish (2008) with transformational leadership styles to have a significant positive impact on learning culture and group cohesion. The positive relation of transformational leadership with team cohesiveness and commitment was also supported by research of Pillai and Williams (2004). Transformational leadership behavior also seems to enhance the organizational citizenship behaviors of followers, by providing assistance and preventing the appearance of problems to the team members, and efficient representation in organizational decision making process (Krishnan & Arora, 2008).

Although, there is some evidence of linkage between leadership, especially the transformational form with teamwork and team performance in general, there is still space for more research to be conducted. Recognizing the underdeveloped area of the direct correlation of transformational leadership with team training, Dionne, Yammarino, Atwater, and Spangler (2004) provide a theoretical framework of a model. According to the authors' conceptual model, the possible impact of the following transformational factors is examined (idealized influence, inspirational motivation, individualized consideration and intellectual stimulation) on teamwork. As teamwork includes process**es** such as communication, conflict management and cohesion the consideration of the above transformational factors is crucial.

CHAPTER III

SYSTEMATIC REVIEW ON PROFESSIONAL DEVELOPMENT THROUGH OUTDOOR TRAINING: SPECIAL FOCUS ON LEADERSHIP COMPETENCIES

By gathering inclusive updated research findings, this systematic review defines a conceptual framework of using experiential OT to contribute to individual development with a special focus on leadership competencies. By synthesizing all the empirical studies that apply in an OT intervention, which is designed to increase overall professional competence, this study explores professional competency's outcomes and provides valid information for planning and implying an experiential OT program as a useful tool for PD. Three primary questions compiled this review: (1) what are the main characteristics (such as duration and content) of the activities used across studies using experiential OT? (2) What kinds of competencies are observed across studies measuring PD? (3) Are there any differences between the professional and the student population in the observed leadership competencies?

Search strategy for identification of studies

For the conduction of this systematic review, five sources were used to locate all relevant and eligible studies. Firstly, specific electronic databases were used such as: EBSCOhost which includes Academic Search Premier, ERIC, PsycINFO, and Psychology & Behavioral Sciences Collection; EMERALD; and ProQuest which includes (Digital Dissertations and Theses). Secondly, existing bibliography (Attarian & Holden, 2005) and meta-analyses related to ropes challenge courses were reviewed (Bunting & Donley, 2002; Gillis & Speelman, 2008). Thirdly, the reference lists of the research papers were reviewed, that were identified by the database search. Fourthly, hand searching key journals (Journal of Experiential Education; Journal of Adventure Education & Outdoor Leadership; Research in Outdoor Education; Journal

of Leisure Research; Australian Journal of Outdoor Education; Journal of Adventure Education & Outdoor Learning; Journal of Outdoor Recreation and Leadership) and conference proceedings (National Conference on Outdoor Leadership; Annual Symposium on Experiential Education Research- SEER) were found. Finally, contacting those authors in cases of given deficient published information on the selected papers. The core terms that were used were: OMD; experiential learning; OET; CAT; RC, adventure based training; leadership skills development; PD; leadership outcomes and training impact.

Including and excluding studies criteria

Each included study meets the exact criteria. Studies published in English and between 2000 and 2011 were obtained. Only experiential types of interventions using the OT or a combination of OT and other kinds of training were evaluated, including incorporating an intervention that involves adults over age of 18, college or university students and professionals of any specialization and sector. The studies provided details of the treatment and outcome measures, as well as reported demographic characteristics of the participants, or the author who provided this information when contacted. Furthermore, studies reported analyses from three research designs: qualitative; quantitative or mixed method, having a control group or not. Finally, studies examined outcomes within an interest of PD with a special focus on leadership or/and teamwork competency.

Studies were excluded if all or some of the participants were aged younger than 18 years, if the study population was characterized at risk and the treatment had a therapeutic purpose. Also, studies were excluded if the outcome measures were referred to another interest than PD, such as the satisfaction level of the participants with the selective outdoor program. Finally, if the studies did not provide satisfactory

details either for the participants or for the treatment, were excluded. All citations were reviewed for inclusion using the criteria shown in Table 1.

Table 1. Study inclusion and exclusion criteria

Included populations
Adults over 18 years old, College & university students and Professionals in any sector
Excluded populations
Youth & children and Populations at risk
Types of interventions
• Only experiential type of interventions using the OT or a combination of OT and other kinds of outdoors like wilderness expeditions. • Experiential interventions with a control group or single group
Subgroups of interest
• Demographic characteristics (age, sex, year of study, years of working experience, previous experience in experimental education) • Study design (qualitative; quantitative or mixed method) and instrumentation details (reliability, validity of measurements used) • Year of study (between years of 2000 and 2011) • Publishing language (English)
Included outcomes
• Personal development, Interpersonal development • Leadership development or/and Teamwork development • Any related outcome with leadership & teamwork

Process of included and excluded studies

Overall, the database searching located 130 articles, an additional number of 59 more articles were identified through a reference list of identified studies, counting in total 189 articles. In the screening stage, 12 articles were located as duplicates and removed, with them mostly referring to the same dissertation or thesis. In this stage, published articles were preferred from grey literature (conference proceedings), where a later release existed, as published articles provide stronger evidence of reliability of results. After removal of duplicate entries, 177 articles remained. From these, 30 were excluded as they did not address the research question of the review. From the remaining 147 articles which addressed eligibility, 89 were excluded as they did not meet some of the inclusion criteria. Analytically, 25 articles were rejected taking into account the age of the participants being younger than 18 years and 15 articles were rejected due to inappropriateness of the sample as derived from at-risk populations or tourist participants

in an outdoor event. Furthermore, 13 studies were excluded by cause of using other kinds of intervention than experiential in the OT. Besides, 36 studies were excluded because they did not examine outcomes related to PD. Finally, only 58 studies fulfilled the inclusion criteria and were used for the systematic review. For the presentention of the process report the template adapted from Moher, Liberati, Tetziaff, Altman (2009) was used. The reporting item's statement on the process of inclusion and exclusion records are shown in Table 2.

Table 2. Reporting items statement on the process of inclusion and exclusion records

Identification	Number of records identified through database searching (n = 130) Number of additional records identified through reference lists of identified studies (n = 59)
Screening	Number of records after duplicates removed (n = 177)
Eligibility	Number of records excluded from (n = 30) Number of full text articles addressed for eligibility (n = 148)
Number of full text articles excluded, with reasons (n = 89)	Inappropriate population (age n=25) & (at risk- therapy or other n= 15) Other intervention not using the outdoors (n = 13) Outcome measures out of interest (n = 36)
Number of studies included in systematic review (n = 58)	

Data extraction

The following data were extracted from the included studies: author, year of publication, country, design, sector applied, research aim and hypothesis, sample, leadership development program/intervention, measurement instrumentation, results (observed). These data are presented in the appendix D1 and D2, with title 'Appraisal of methodological creteria for included studies's characteristics'. The selected studies are presented grouped per sample characteristics those of proffesionals and studentes.

Results of Systematic Review

The principal focus of this systematic review is on PD with results presented through subgroup analyses by splitting all the participant data into two subgroups of professionals and students aged over 18 years old. The reasons of using subgroup analyses are the investigation of the heterogeneous age of participants and the big diversity in their working experience as its foremost consequence. These differences can be explained in part by the workplace experience. For example, a student might have short term work placement or not at all, before he/she emerges as a potential employee. On the other hand, the entire counted professionals appeared with employment background which provides them with significant insights into the industry.

Professional sample

Participants' characteristics

In the PS category, 29 studies were included, with overall 2313 counted participants in experimental groups. All of them were over 18 years old and were not comprehended students with an exception of MBA, EMBA and doctoral. The reason including these three categories, even though are referred to student populations, is because to apply for MBAor EMBA program, there is an admission requirement of minimum three years of working experience. Respectively, the majority of doctoral students already have an occupational background of being employed in research centers or even teaching in a university as a requirement of graduation.

The vast majority of the studies were conducted in United States of America (USA) (n = 22), five studies in United Kingdom (UK) and two in Asia (one in Singapore and one in Malaysia). The age range of this study group was from 18 up to 59 years old, with an average age of 35.8 years old. Nevertheless nine studies did not

provide participants' age information, so this estimation of average age is counted for 69% of the entire population. The majority of participants being male (n=651) in comparison with female (n = 297). This computation of gender is counted for 66% of the total population, as in 10 studies, this information was not provided.

Finally, estimating the working experience, the greater number of participants belonged to the category of 11-20 years (n = 478), and the remaining in the category of 6-10 years (n = 434), 1-5 years (n = 398) and over 20 years (n = 175). This age division is counted also for 66% of the total population, as in 10 studies, this information was missing. The total number of professional sample (PS) per country of origin, gender and working experience is given in Table 3.

Table 3. Total number of professional sample per country of origin, gender and working experience

Country of origin	***N of studies***	**N of participants**
U.S.A.	22	1221
U.K.	5	568
Asia	2	524
Total	***29***	***2313***
Gender		
Male		651
Female		297
*n/a	10	1365
Total		***2313***
Working experience		
1-5 years		398
6-10 years		434
11-20 years		478
Over 20 years		175
n/a	10	828
Total		***2313***

*n/a: not answered

The business sector was the most applied, consisted of 11 studies with a total of 1298 participants, followed by the education sector which included 14 studies with 966 participants. Also, the sports-recreation sector (n = 1 study) involved 20 participants, the health sector (n = 2 studies) 16 of them and one study from mixed sectors contained 13 participants. In the business sector, participants' variability

included employees of all levels, from executive managers and firm owners to middle and senior-level managers. In all studies the only confirmed data that **was** given appeared to be: 403 first-line managers in photo product from the manufacture sector; 179 trainers and coaches of industries and 26 first line recruitment managers from the human recourse management sector; 95 bank employees and 37 financial institution employees from the financial sector. In the education sector, the greater numbers of participants were: MBA students (n = 647); EMBA students (n = 73); university and college staff (n = 59); school teachers (n = 40); doctoral students (n = 27); other educational expertise such as teacher quality coordinator, college professor and technology center manager (n=13); school principals (n = 6); and directors and administrators (n = 5). In the sports-recreation sector, participants were outdoor professionals (n = 20), one community manager and one city recreation director. Finally, in the health sector, 16 participants were employees in a dental center, and one was executive director of a public health program. Reviewing all the evidence, particularly for the PS characteristics, in Table 4 the total number of participants per employment sector and employment specification is presented.

Table 4. Total number of PS per employment sector and employment specification

Employment sector	***N of studies***	**N of participants**
Business	11	1298
Education	14	966
Sports-recreation	1	20
Health	2	16
Mixed	1	13
Total	***29***	***2313***
Employment specification		
MBA students		647
EMBA students		73
University & college staff		59
School teachers	**Education**	40
Doctoral students		27
Other educational expertise		13
School principals		6
Directors & administrators		5
n/a		96
Manufacture (photo product)		403
Human recourse management	**Business**	205
Financial (bank, institutions)		132
n/a		558
Outdoor professionals		20
Community manager	**Sports-recreation**	1
City recreation director		1
Dental center employees		16
Head of public health program	**Health**	1
Not specified		10
Total		***2313***

*n/a: not answered

Methodological issues

The sample sizes in these studies varied from seven to 420, which is considered a moderate variation. The majority (76%) of the PS studies had less or equal to 100 participants (N=713), and an average of 33. Three studies (12%) had more than 100 with a total number of 451 and equally three studies (12%) had more than 300 with a total number of 1149 participants. Also, only nine studies (31%) had a control group in their research design. A control group ensures that any changes being observed in an experimental group are due solely to the experience or intervention. Additionally, single group pretest-posttest design, as Carlson and Schmidt (1999) mentioned, is considered an appropriate research approach to evaluate training programs and to measure individual growth and learning. Furthermore, in meta-

analysis of Collins and Holton (2004) it is validated that behavior changes occurred in a managerial leadership development program, when measured objectively from pre-post tests which are greater compared to the scores of a treatment and control group after an intervention. The number of participants (only accounted experimental groups) among PS studies is presented in Table 5.

Table 5. Number of participants (only accounted experimental groups) among PS studies

Participants	**Studies**
n≤100	Broda (n=7); Bryan & Starr (n=13); Burke & Collins (n=39); Dougherty (n=20); Flurie (n=23); Fuller (n=20); Gass & Priest (n=92); Hamilton & Cooper (n=26); Hoepner (n=10); Hornyak & Page (n=12); Jones & Oswick (n=19); Judge (n=73); Kass & Grandzol (n=12); Merritt (n=30); O'Bannon (n=37); Paul, Strbiak & Landrum (n=10); Paxton & McAvoy (n=68); Pazmino-Cevallos (n=32); Rapposelli (n=27); Rodenbaugh (n=27); Watson & Vasilieva (n=100); Wolfe & Dattilo (n=16)
n>100	Goldenberg et al. (n=125); Sail & Alavi (n=179); Shivers-Blackwell (n=147);
n≥300	Hoover et al. (n=420); Jones, Oswick & Lockwood (n=384); Ng (n=345);

The larger proportion of studies 59% were qualitative (n = 17), eight of them (28%) used mixed research methods, combined qualitative and quantitative methods and only four (13%) were quantitative. The highest number of the studies used more than one method of collecting data from participant's enrollment in outdoor programs and on the effects of that experience on them. Such methods included questionnaires, interviews (structure and semi-structure), participant observations, focus group discussion or interviews, journal writing, peer feedback, self-writing reports, document analysis and videotaped meetings.

The questionnaires (62%) were the most frequently used methods for data collection however participants' observation (41%), interviews (38%) and journal or self-report writing (31%) appeared as alternative used methods. Measurement instruments varied greatly among the studies with the greater part of studies using standardized, validated quantitative measures such as the Team Development Indicator (Bronson, 1991), Leadership Practice Inventory (Kouzes & Posner, 2003)

and the Team Effectiveness Critique Inventory (Alexander, 1985). The remaining studies (n = 6) used single instruments, including some studies where the researcher developed the instrument. Finally, in the research procedure, the higher amount of the studies (n = 10) used the pre-post and follow up design, with a range of the follow up measurement from three weeks to one year later. Five studies followed the pre-post design, two studies the post design and only one the retrospective evaluation design. According to this design, all the data-information was collected at the end of the intervention. The sources of data used in studies in the PS are presented in Figure 11.

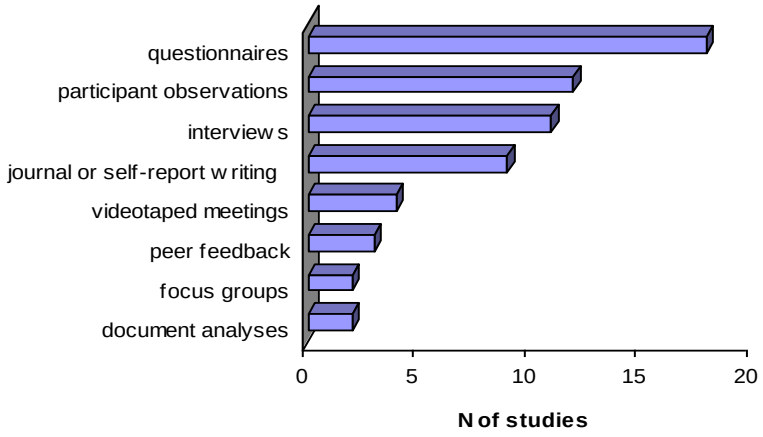


Figure 11. Sources of data used in studies of PS

Interventions

The duration of the OT programs varied from one-day up to nine weeks (Table 6.). Most of the interventions lasted 1-day (n = 12 studies), with 597 participants; 4-days (n = 4) with 321 and 2-days (n = 3) with 380. Table 6 summarizes the range of OT programs duration per study and number of participants in PS sample.

Table 6. The range of OT programs duration per study and number of participants in PS sample

Duration	*N of studies*	*N of participants*	**Studies**
1-day	12	597	Goldenberg, Klenosky, O'Leary & Templin (2000); Hoepner (2002); Hornyak & Page(2004); Judge (2005); Merritt (2010); O'Bannon (2000); Pazmino-Cevallos (2003); Rapposelli (2002); Shivers-Blackwell (2004); Watson & Vasilieva (2007); Wolfe & Dattilo (2007); Wolfe & Dattilo (2006)
2-days	3	380	Bryan & Starr (2005); Ng (2001); Paul, Strbiak & Landrum (2004);
3-days	3	53	Broda 2007; Doughert 2006; Hamilton & Cooper 2001;
4-days	4	321	Flurie (2006); Gass & Priest (2006); Rodenbaugh (2002); Sail & Alavi (2010)
7-days	2	403	Jones & Oswick (2007); Jones, Oswick & Lockwood (2007)
21-days	1	68	Paxton & McAvoy (2000)
9 weeks	1	420	Hoover, Giambatista, Sorenson & Bommer (2010)
n/a	3	71	Burke & Collins (2004); Fuller (2006); Kass & Grandzol (2010)
Total	***29***	***2313***	

There was a variety of types of undertaken activities, based on four main categories: RC; mixed which combined outdoor activities and traditional activities in class; wilderness expedition; and a combination of RC and wilderness. The most applied type of intervention was the RC in 19 studies (66%), followed by the mixed programs (n = 4) while three studies used a wilderness expedition and another three used a combination of RC and wilderness as an intervention. RC program components included activities of low ropes elements such as river crossing and spider's web, and high ropes elements such as team belay and zip line. Another content category was the use of in-class activities combing case studies and role playing additionally with outdoor activities. Wilderness Expedition (WE) interventions referred to the participation in activities for instance long hike and rock climbing. Finally, there were studies that combined RC and wilderness. Table 7 summarizes the main content characteristics of the outdoor interventions in PS.

Table 7. Content characteristics of the outdoor interventions in PS

Type of program	*(N of studies)/ N of participants*	**Studies**
Ropes course (RC)	(19) 1271	Bryan & Starr (2005); Burke & Collins (2004); Dougherty (2006); Flurie (2006); Gass & Priest (2006); Goldenberg, Klenosky, O'Leary & Templin (2000); Hamilton & Cooper (2001); Hoepner (2002); Merritt (2010); Ng (2001); O'Bannon (2000); Paul, Strbiak & Landrum (2004); Pazmino-Cevallos (2003); Rapposelli (2002); Sail & Alavi (2010); Shivers-Blackwell (2004); Watson & Vasilieva (2007); Wolfe & Dattilo (2007); Wolfe & Dattilo (2006)
Mixed (outdoors & in class)	(4) 466	Broda (2007); Hoover, Giambatista, Sorenson & Bommer (2010); Hornyak & Page (2004); Rodenbaugh (2002)
Wilderness expedition (WE)	(3) 161	Fuller (2006); Judge (2005); Paxton & McAvoy (2000)
Combination of RC & wilderness	(3) 415	Jones & Oswick (2007); Jones, Oswick & Lockwood (2007); Kass & Grandzol (2010)
Total ***29***	***2313***	

	Activities undertaken
- Low ropes courses	hula-hoop pass; ball jungle; river crossing; nitro crossing; calculator; mission possible; spider's web; raft project; blindfolded trust walk; Paintball team; Starfish; spaceship; balance board; triangle puzzle; poly spots; traffic jam; keypunch, muse & wild woozy; desert trolley; Maui-to Kauai or islands; ball passing; warp speed
- High ropes courses	cat walk; pamper pole; climbing wall; climbing tower giant ladder; team belay; zip line; building a bridge; trust fall
- Wilderness expedition	mountain trekking; rock climbing & rappelling; long hiking; fly-fishing; orienteering trip; caving expedition; pond object retrievals
- in class activities	case studies; articles read; role playing; team presentations; simulations, group projects; lecture

Outcome measures and results

The outcomes resulting from each intervention, used in included studies, were classified first through unit analysis and then recoded in four new domains of competencies: (A) interpersonal skills, (B) leadership skills, (C) business/management skills and (D) personal attributes. For the recoding of the outcomes, a classification model of Byham, Smith and Paese (2002) was used, as an appropriate approach of the behaviorally defined competences. In the first domain of interpersonal skills five specific clusters of behavior were comprised: A1) communicating with impact, A2) cultural interpersonal effectiveness, A3) customer orientation, A4) developing strategic relationships and A5) persuasiveness. Subsequently, in the second domain the following seven leadership skills were included: B1) building organizational

talent; B2) leadership of change; B3) coaching/teaching, B4) empowerment/delegation, B5) influencing others, B6) selling the vision and B7) team development. In the third domain of business/management skills seven competencies were obtained: C1) business acumen, C2) entrepreneurship, C3) establishing strategic direction, C4) global acumen, C5) managing the job, C6) mobilizing resources and C7) operational decision making. The last domain of personal attributes consisted of nine behaviors: D1) accurate self-insight, D2) adaptability, D3) driving for results, D4) energy, D5) executive disposition, D6) learning orientation, D7) positive disposition, D8) reading the environment and D9) valuing diversity.

In line with this competency taxonomy model, which is called DDI a list of four clusters of competencies is defined with 28 dimensions that describe the behavior, knowledge and motivations of individuals in all organizational levels. This competency taxonomy is selected because it offers a valid overview of the abilities which are essential for organization growth and improvement efforts, as it provides opportunities for identification, developing and retaining leadership talent. Especially, within the DDI taxonomy, knowledge, or/and personal attributes are defined skills which are necessary to be executed for business success. This broad view of competencies answers the need for availability of talent through organizations. Michaels, Handfield-Jones and Axelrod (2001) pointed out that this need will be the greatest organizational deficiency, over the next generation.

The leadership skills, with 58 observed reports, appeared to be the frequent ascertained domain of outcomes. Particularly, team development was the notably represented outcome with 19 reports. According to the definition given by Byham, Smith and Paese (2002), in this domain of skills any observed outcomes were included related to the utilization of methods and interpersonal style in order to develop, motivate and lead a team toward success and achievement of business

objectives. The next frequently occurring outcome was the empowerment (n = 13), followed by change leadership (n = 9), influencing others (n = 6), coaching and selling the vision (n = 4 each) and building organizational talent (n = 3). The frequency of the outcomes in the leadership skill domain is presented in Figure 12.

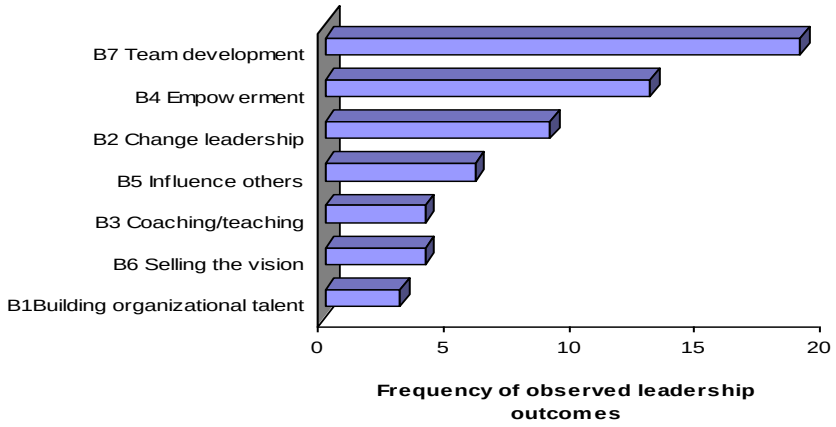


Figure 12. Leadership skills outcomes in PS

An addition domain of outcomes was the personal attributes, with 32 observed reports. The preponderance of participants appeared with gained accurate self-insight (n = 7 reports) and positive disposition (n = 7). Defining self-insight, counted those attributes that adopt an awareness of strengths and developmental needs in personal level as well as, the impact of their behaviors on team members. Correspondingly to the positive disposition the outcome is explained by a demonstration of a positive attitude in case of a difficult or challenging situation. Further personal attributes were distinguished such as: driving for results, learning orientation and valuing diversity (n = 4 each), reading the environment (n = 3), adaptability (n = 2), and executive disposition (n = 1). In Figure 13 the frequency of the outcomes in personal attribute's domain is presented.

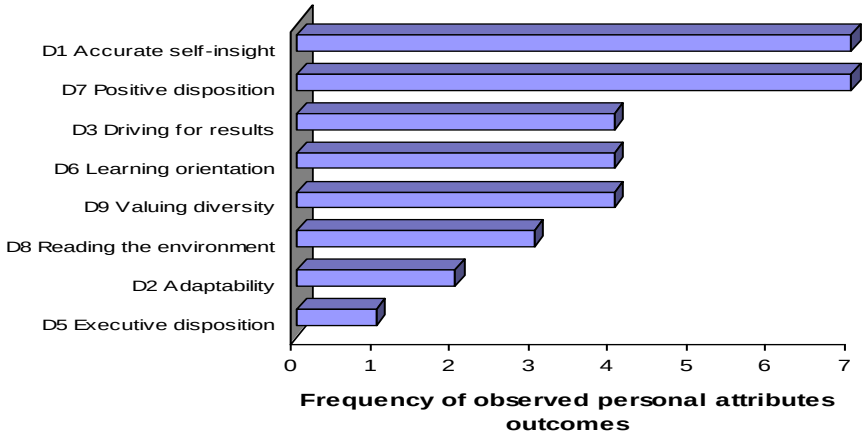


Figure 13. Personal attributes outcomes in PS

Business/management skills, was the third domain which appeared with 25 observed reports. The operational decision-making and managing the job were the regular common skills, which were ascertained in each of the seven reports. The operational decision-making, explains the actions made for a decision to secure relevant information, by examining the alternative options and taking into consideration available resources and any possible obstacles. The comprehension of managing the job is referred to skills such as controlling job tasks by managing and planning time on priority goals, demands and areas of opportunities. The remaining skills in this domain were establishing strategic direction (n = 4 reports), accompanied by business acumen and mobilizing recourses (n = 3 each). Only one report was in entrepreneurship skill while any observed reports on global acumen were absent. In Figure 14 the frequency of observed outcomes in the business/management skills domain are presented.

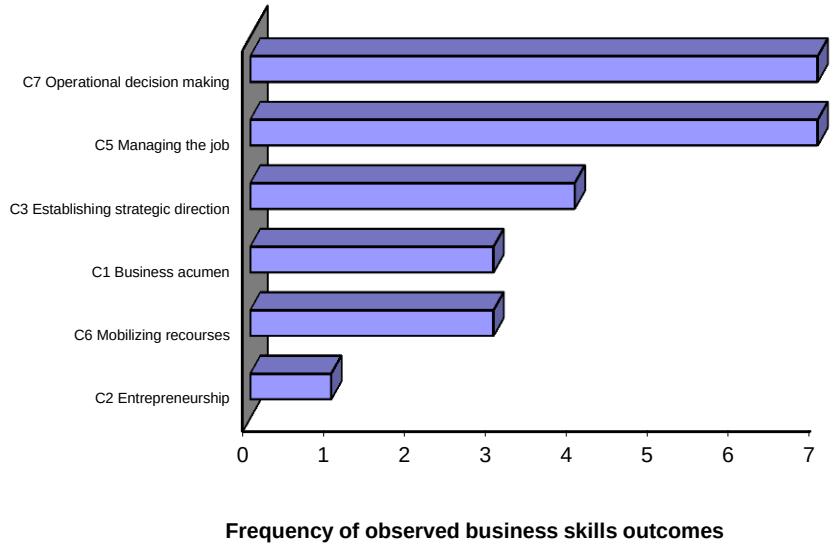


Figure 14. Business/Management skills outcomes in PS

The last domain of outcomes was interpersonal skills which 24 reports concentrated on the following main outcomes: communicating with impact (n = 14 reports), developing strategic relationships (n = 6) and the cultural interpersonal effectiveness (n = 4). Communication with impact is defined as the expression of thoughts, feeling and ideas of an individual in a clear way, and an adjustment of proper use of language in different groups and situations. Nonetheless, the outcomes related with customer orientation and persuasiveness were absent.

Analysis of selected publications by the main four domains of observed outcomes has yielded the following results. In the professional sample, all studies with an exception of only one focused on leadership skills outcomes. In total, 58 reports were identified, with the most prevalent competence being the team development (66.5%). In more than half, 17 studies (58.6%) interpersonal skills outcomes with 24 observed records were ascertained. The predominant competence in this domain was the communication with impact, located in 14 of the 17 studies (82%). Equally, 15 studies had both business/management skills (25 reports) and

personal attributes outcomes (32 reports). In the business skills outcomes, the decision making (28%) and managing the job (28%) were more often observed. Also, depending on the personal attributes outcomes, the appeared competences were self-insights (22%) and positive dispositions (22%). Table 8 summarizes the professional sample observed outcomes of each study per domain of competences.

Table 8. Total number of professional sample observed outcomes of each study per domain of competences

Studies Professional sample	A. interpersonal skills	B. leadership skills	C. business/ management skills	D. personal attributes
Broda	A4,A1	B4,B2,B7	C5	D7,D1,D3
Bryan & Starr		B2,B6,B7,B5,B4, B1,B3	C3,C5	
Burke & Collins	A1,A4	B3,B4	C1,C2,C7	D1,D9,D2,D6,D8
Dougherty	A2	B4	C5,C3	D1
Flurie		B5,B7		D5,D9,D7,D3
Fuller	A4,A2,A1	B2,B7,B6,B4,B3	C7	
Gass & Priest		B7		
Goldenber, et al.	A1	B7	C5	
Hamilton & Cooper		B2,B7		
Hoepner		B4,B2	C6,C7	D3
Hoover et al.	A1	B4	C7,C1	
Hornyak & Page	A1	B4,B7,B2,B3	C6,C7	D8
Jones & Oswick	A1	B7,B5	C5,C6	D1,D7
Jones et al.		B7	C5,C3	D1,D7,D9,D8
Judge		B2,B4,B6,B5,B1		
Kass & Grandzol	A1	B2,B6, B5,B4		
Merritt	A4	B5,B7		D1
Ng		B7	C1	
O'Bannon	A1	B7	C3,C7	
Paul, Strbiak & Landrum		B7		
Paxton & McAvoy	A1	B4		D6
Pazmino-Cevallos		B7		
Rapposelli	A1	B2	C7	D1
Rodenbaugh	A2,A4		C5	D6
Sail & Alavi	A2,A1	B7		
Shivers-Blackwell		B7		
Watson & Vasilieva		B4,B1		D7,D2,D6
Wolfe & Dattilo(2007)	A1,A4	B7,B4		D7,D9
Wolfe & Dattilo(2006)	A1	B7		D3,D7
N=29	**N=24**	**N=58**	**N=25**	**N=32**

University student sample

In the category of university and college students', 29 studies were included, with overall 3153 participants based only on study/experimental groups (EG). The age of the participants was over 18 years old and ranged from 1st year students to master students. The vast majority of the studies conducted in the USA (n = 22) containing 2112 participants. The rest of the studies were conducted in Asia (1 in Malaysia and 1 in China) inclusive of 724 participants, two in New Zealand with 185, one in Canada with 98 and two studies in Africa with 34 participants. The age range of this study group was from 18 up to 52 years old, with an average age of 21.7 years old. This computation of age counted for 70% of the entire population, as in nine studies, this information was not supplied. The majority of the participants were female (n = 1668) in comparison to male (n = 1462). This computation of gender counted for 97% of the total population, as in one study this information was not presented. Lastly, the majority of participants were undergraduate students (n = 3139), college athletes (n = 8) and postgraduate (master level) students (n = 6). Table 9 shows the total number of student sample (SS) participants per country of origin, gender and level of studies.

Table 9. Total number of SS per country of origin, gender & level of studies

Country of origin	***N of studies***	**N of participants**
U.S.A.	22	2112
Asia	2	724
N. Zealand	2	185
Canada	1	98
Africa	2	34
Total	***29***	***3153***
Gender		
Male		1462
Female		1668
n/a	2	23
Total		***3153***
Student level		
Undergraduates	27	3139
Master	1	6
College athletes	1	8
Total	***29***	***3153***

*n/a: not answered

Methodological issues

The sample sizes in these studies referred to the experimental group (EG) varied from six (6) to 692, which is considered a small variation. The supremacy (70%) of the student sample studies had less or equal to 100 participants, with an average of 31 participants, six studies (21%) having more than 100 and three of them (9%) having more than 300 participants. A substantial proportion of nine studies (30%) had a control or comparison group. Table 10 shows the number of participants (only accounted experimental groups) among studies in student sample.

Table 10. Number of participants (only accounted experimental groups) among SS studies

Participants	**Studies**
n≤100	Beezley (n=6); Belter (n=63); Birx, Wagstaff & Van Patten (n=34); Breheny (n=21); Breuning et.al (n=98); Ewert & Overholt (n=18); Fields (n=15); Fletcher (n=8); Greffrath et al. (n=28); Hatch & McCarthy (n=76); Hayashi (n=72); Hinton, Twilley & Mittelstaedt (n=25); Hobbs & Spencer (n=12); Human (n=6); Leberman & Martin (n=20); Odello, Hill, Coryland & Gomez (n=43); Phipps & Hayashi (n=8); Roark & Norling (n=24); Rothwell et al. (n=12); Sottile, Parker & Watson (n=22)
n>100	Austin et al (n=118); Frauman & Waryold (n=147); Liang & Bo (n=134); Martin (n=165); Shooter, Paisley & Sibthorp (n=245); Wiltscheck (134)
n≥300	Belknap (n=317); Bell (n=692); Harum & Salamuddin (n=590);

The biggest part (59%) of the studies (n = 17) used mixed research methods combined qualitative and quantitative methods, seven of them (24%) were quantitative and only 5 (17%) were qualitative. High quantity of studies used more than one collection data method including: questionnaires, interviews (structure**d** and semi-structure**d**), participant observations, focus group discussions or interviews, journal writing, peer feedback, self-writing reports or essays, document analysis, and videotaped meetings.

The most commonly used methods were questionnaires (93%), interviews (33%), participant observation (27%) and journal or self-report writing (20%).

Measurement instruments varied greatly among the studies with the dominance of studies using standardized, validated quantitative measures such as: the Trait Emotional Intelligence Questionnaire (Petrides & Furnham, 2006), Problem Solving Inventory (Heppner & Peterson, 1982), Group Cohesion Questionnaire (Van Andel et al., 2003), Empowering Leadership Questionnaire (Arnold, Arad, Rhoades, & Drasgow, 2000) and Multifactor Leadership Questionnaire (Bass & Avolio, 1997). The remaining studies (n = 5) used single instruments, with some studies where the researcher developed the instrument. Finally, in the research procedure, many of the studies (n = 14) followed the pre-post and follow up design, with a range of the follow up measurement from three weeks to one year later, 10 studies followed the pre-post design and only five studies the post design. In Figure 15 the sources of data used in studies of student sample are presented.

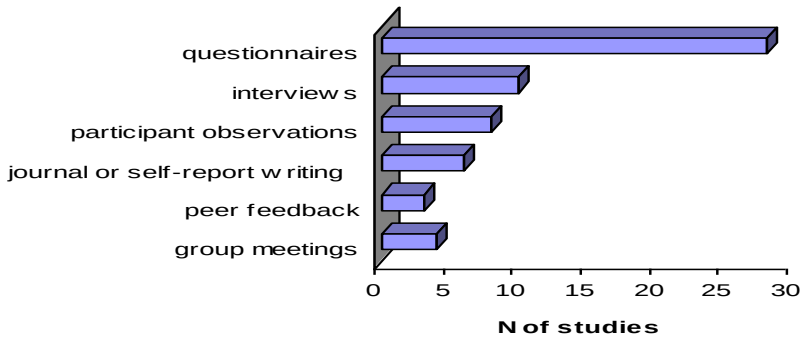


Figure 15. Sources of data used in studies of student sample

Interventions

The duration of the OT programs in the selected studies varied from one day up to three weeks. As it can be seen in Table 11, the interventions lasted in the majority of the studies (n = 9) one day, and four of them had mixed duration of time.

Table 11. Duration variance of the outdoor interventions in student sample

Duration	***N of studies (n of participants)***	**Studies**
1-day	9 (n=397)	Belter (2008); Birx, Wagstaff & Van Patten (2008); Breheny (2000); Fletcher (2000); Hatch & McCarthy (2005); Human (2006); Odello, Hill, Coryland & Gomez (2008); Rothwell, Siharath, Badger, Negley, & Piatt (2008); Wiltscheck (2000)
2-days	2 (n=267)	Shooter, Paisley & Sibthorp (2010); Sottile, Parker & Watson (2000)
3-days	1 (n=134)	Liang & Bo (2009)
4-days	2 (n=162)	Fields (2010); Frauman & Waryold (2009)
5-days	2 (n=44)	Leberman & Martin (2005); Roark & Norling (2010)
6-days	1 (n=692)	Bell (2006)
1-week	2 (n=342)	Belknap (2011); Hinton, Twilley & Mittelstaedt (2006)
13-days	1 (n=98)	Breuning, O'Connell, Todd, Anderson & Young (2010)
2-weeks	1 (n=12)	Hobbs & Spencer (2002)
16-days	1 (n=8)	Phipps & Hayashi (2005)
17-days	1 (n=6)	Beezley (2007)
3-weeks	1 (n=18)	Ewert & Overholt (2010)
Mix of days	4 (n=383)	Austin, Martin, Mittelstaedt, Schanning & Ogle (2009); Greffrath, Meyer, Strydom & Ellis (2011); Hayashi (2006); Martin (2001)
n/a	1 (n=590)	Harum & Salamuddin (2010)
Total	***29 (n=3153)***	

In accordance with the type of intervention program five main categories were identified: Rope courses (RC), mixed, which combined outdoor activities and in-class training; wilderness expedition (WE); a combination of RC and WE and a combination of WE and community service. The RC was the most applied program type in 12 studies (41%), followed by the WE, cited in 10 studies (35%). Furthermore, a combination of RC and WE was examined in five studies (17%). As for both cases of mixed programs, the combinations of WE and community service, and the combination of outdoors and in class training, they were equally used in one study each (see Table 12).

Table 12. Type of program among studies in student sample

Type of program	***N of studies (n of participants)***	**Studies**
Rope Courses (RC)	12 (n=798)	Belter (2008); Birx, Wagstaff & Van Patten (2008); Breheny (2000); Fletcher (2000); Hatch & McCarthy (2005); Human (2006); Liang & Bo (2009); Odello, Hill, Coryland, & Gomez (2008); Rothwell et al. (2008); Shooter, Paisley & Sibthorp (2010); Sottile, Parker & Watson (2000); Wiltscheck (2000)
Mixed (outdoors & in class)	1 (n=15)	Fields (2010)
Wilderness expedition(WE)	10 (n=1594)	Beezley (2007); Bell (2006); Ewert & Overholt (2010); Frauman & Waryold (2009); Harum & Salamuddin (2010); Hayashi (2006); Hinton, Twilley & Mittelstaedt (2006); Hobbs & Spencer (2002); Phipps & Hayashi (2005); Roark & Norling (2010)
Combination of RC & WE	5 (n=429)	Austin et al. (2009); Breuning et al. (2010); Greffrath et al. (2011); Leberman & Martin (2005); Martin (2001)
Combination of WE & community service	1 (n=317)	Belknap (2011)
Total	***29(n=3153)***	

Rope courses program components include activities of low and high elements. Referring to low-ground elements, undertaken activities were: spider's web, nitro-crossing, group juggle, TP shuffle, porcupine progression, whale watch, mohawk walk, trust fall, wild woosey, minefield, blindwalk clay, medusa ring, toxic waste and human knot. The high-ground elements included activities such as: odyssey, jacob's ladder, postman's walk, multi vine, balance beam, and high all abroad. Another content category was the use of in-class activities, such as: leadership workshops, CPR, wilderness first aid training, creative workshops, role playing, and group presentations. Wilderness expedition interventions referred to the participation in activities such as: sea kayaking, rock climbing, backpacking, white-water rafting, canoe trip, summit climb, solo, desert trip, and ice-climbing. Finally, there were also studies that included community service elements, for example, working with volunteers in constructing an actual house.

Outcome measures and results

The leadership skill was the most constant domain of outcomes, with 36 reports. Team development appeared to be the highest represented outcome (n = 13 reports), following the influence of others (n= 6 reports), building organizational talent (n = 6 reports) and change leadership (n= 4 reports). Coaching and empowerment had three reports each and selling the vision had only one report. Referring to teamwork skills observed outcomes included: collaboration, teamwork to accomplish more, cohesion, cooperative teamwork, group effectiveness, group dynamic skills: and working in a group. Influencing others outcome included skills like leading by example, leadership ability and desire of direction. Finally, the skill category of building organizational talent, according to the definition measured the realization of individual highest potential, such as abilities they never knew they had, feeling capable and competent, increasing their personal leadership self-efficacy and realizing a personal change. Figure 16 presents the frequency of observed outcomes in the leadership skill domain.

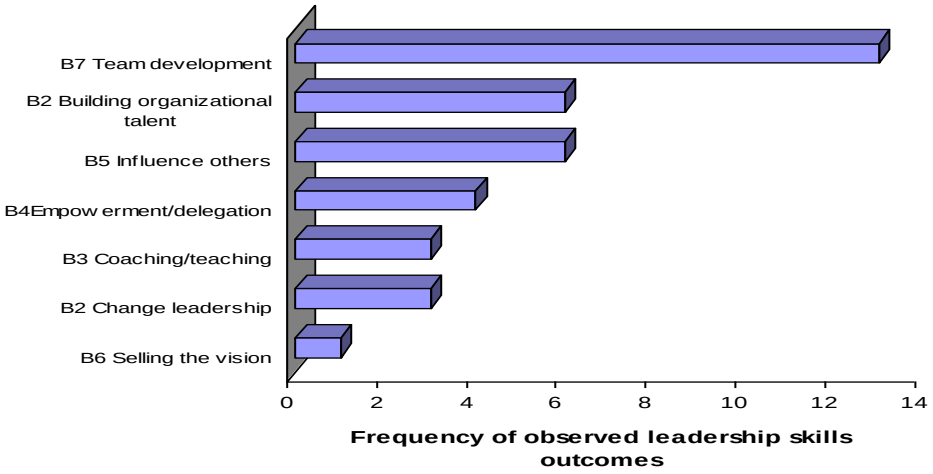


Figure 16. Leadership skills outcomes in student sample

Personal attributes were the second frequently appeared domain of outcomes, with 31 reports. The preponderant participants gained accurate self-insight (n = 12 reports), such as realizing and improving negative and positive behaviors, awareness of personal strengths, experiencing other's emotions, opportunity for nurturance, personal and emotional control, awareness of others especially breaking down stereotypes, character building skills, setting goals and taking the time to know one self. Another attribute was the positive disposition (n = 8) with student participants being more patient; gaining confidence and self-efficacy, reducing their fears and pushing personal boundaries. Adaptability and driving for results attributes had four reports each, environment (n=2) and energy (n = 1). From this domain of outcomes any observed competencies related with an executive disposition, learning orientation and valuing diversity were absent. Figure 17 presents the frequency of observed outcomes in personal attribute's domain.

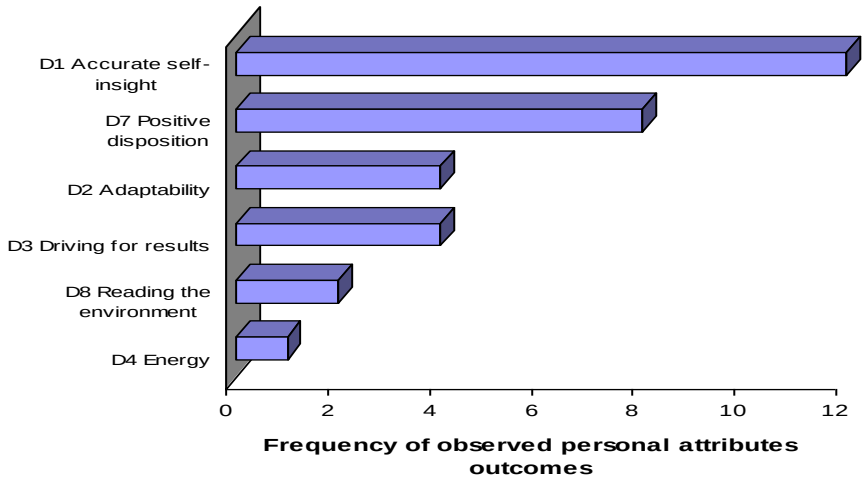


Figure 17. Personal attributes outcomes in student sample

The third domain of outcomes was the interpersonal skills with 27 reports. It was noticed that the majority of skills were focused on developing relationships (n = 12 reports) with plenty of quotations such as friendship, empathy and compassion,

reliable alliance/support, getting to know each other and becoming closer, trust in self and in others, success through interpersonal relationships, as an effect and interaction, social competence and abilities. However, communicating with impact was found to be the second most important outcome with eight reports. Expressing emotions, communicating better, speech communication skills and valuing clarification were some indicative references of this category of competencies. Another highly mentioned skill was the interpersonal effectiveness (n =7), with relevant references, for instance, having a discussion with someone from a different background, considering individual effectiveness and interpersonal self-efficacy. Although neither customer orientation nor persuasiveness skills were cited among the observed outcomes of the selected studies. Figure 18 is drawn to present the frequency of observed interpersonal skills outcomes.

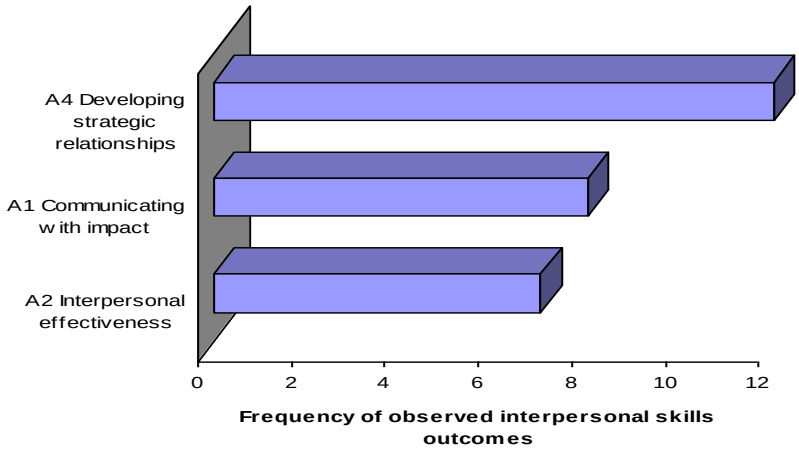


Figure 18. Personal attributes outcomes in student sample

The last domain of outcomes was the business/management skills, which was concentrated in 16 reports. The strongest skills in reports appeared to be managing the job (n = 9 reports). In this category competencies such as: time management, organizational skills, individual effectiveness within the group, work efficacy, effectiveness, risk management, demonstration of respect and goal accomplishment

were mentioned. The next outcome ascertained the operational decision making skill (n = 7), with exhibited competencies of problem-solving ability and confidence, planning and participative decision making. Observed reports related to: business acumen, entrepreneurship, global acumen, establishing strategic direction and mobilizing recourses were not presented in this domain.

Analysis of selected publications by the main four domains of observed outcomes yielded the following results. In the student sample, 22 studies (76%) equally referred to interpersonal skills (27 reports) and personal attributes (31 reports). The most observed competence in the case of interpersonal skills was found to be the development of strategic relationships (n = 12 reports). The predominant competence in the personal attributes domain was awareness of self-insight, located in 12 of the 22 studies (55%). Correspondingly, 19 studies (66%) focused on leadership skills outcomes, with 36 identified reports, with the most prevalent competence being team development (n = 13 reports). Lastly, in 15 studies (52%) outcomes affiliated with business/management skills were identified in 16 reports. In the business skills, managing the job (56%) and decision making (44%) were more often observed. Table 13 summarizes the student sample observed outcomes of each study per domain of competencies.

Table 13. Total number of student sample observed outcomes of each study **in** per domain of competencies

Studies Student sample	A. interpersonal skills	B. leadership skills	C. business/ management skills	D. personal attributes
Austin et al.	A4, A2			D7
Beezley	A4	B1, B7		D1, D7
Belknap	A1			D1
Bell	A4	B3,B4		D1
Belter			C7	D1
Birx et al.	A4, A1	B4, B7		D7
Breheny			C7	D1
Breuning et al.	A2	B7		
Ewert & Overholt		B5, B3	C7	
Fields	A4	B1, B4		D7, D3, D2
Fletcher	A2	B7,B2		D8
Frauman & Waryold	A4		C5	D3
Greffrath et al.	A4	B7	C5	D1
Harum & Salamuddin		B5, B7, B1		D2, D7
Hatch & McCarthy	A2	B7	C5	
Hayashi	A1	B4, B6, B2, B3	C7	
Hinton et al.	A2			D7, D4, D1
Hobbs & Spencer	A1	B5, B7		D1
Human	A1, A4	B5, B7		D2
Leberman & Martin	A4	B7, B1		D7, D1
Liang & Bo	A2		C5	D7, D1, D3
Martin	A4	B1, B7	C7	D1
Odello et al.		B5	C5	
Phipps & Hayashi			C5	D3
Roark & Norling	A1	B7	C5, C7	D1
Rothwell et al.		B5, B2, B7		
Shooter et al.	A1		C5	D2
Sottile et al.	A2, A4		C7	
Wiltscheck	A4, A1	B1	C5	D8
N=29	**N=27**	**N=36**	**N=16**	**N=31**

Discussion of systematic review findings

This systematic review aimed to identify OT interventions to promote professional development. In relation to the first research question the main findings of the sample and the intervention characteristics are presented across the selected studies. By pooling the results based on the originality of the total studies, the vast majority (n = 44) was conducted in the U.S.A. in comparison with the representation of the rest of the countries. Only five studies were conducted in the U.K., four in Asia, two in Africa and N. Zealand and only one in Canada. As a matter of fact, in the U.S.A. OT is well established due to its period of function that appeared from the beginning of 1960s. A very popular form of orientation programs which is adventure training, is offered by many universities to their first-year students. Regarding the business sector, the establishment of OMD in the investment of many businesses or corporations, considers the adventure training a valuable way of personal growth and development.

Examining the methodological issues of the collected studies, significant differences between the professional and the student sample were identified. For example, in the PS the larger part of the studies were qualitative in contrast with the student sample, which was the regular used research method with the combination of qualitative and quantitative. Also, the total number of the participants differed notably, consisting of 3153 students and only 2313 professionals. This difference could be interpreted by the fact that students are approached easily as research sample and the researcher can have a continuous contact, which is useful for conducting a follow up research into the same individuals. Nevertheless, in both samples the average number of experimental groups was analogous with 33 participants in the professional and 31 for the student sample respectively.

Based on the main characteristics of the sample such as the gender of the participants, in the PS, it was noticed that females were underrepresented, compared with males. Considering the male dominant, it's common to the business world, especially in high-level managerial positions. However, a critical comment should be added considering the gender observed distribution, which in fact was not provided in 10 studies. Contrary to the student population, the biggest part of the sample consisted of female participants. Regarding gender some studies located main differences in leadership competencies such as follows guidance and tangible support and personal attributes such as self efficacy. For example, even though both showed positive changes in self-efficacy, women were able to keep those changes longer than men who reported a decline in follow up measurements.

Additionally, in PS, the participants working level experience ranged from 11 up to 20 years. However, it should be noted that this information is not defined in 10 studies, indicating careful considerations of this sample characteristic. Furthermore, the greater applied sector that participants belonged to was business, followed by education, sport-recreation and health.

Returning to the first question which was stated at the beginning of this study, it is now possible to obtain all the meaningful characteristics of the applied training programs. In 26 studies (45%) run a one-day (n =21) or two-day (n = 5) intervention program, 6 studies (10%) a four-day, with the rest of them applying a great variation of duration counting from 3 days up to 9 weeks. With regard to the intervention context, the most prevalent type of program was the use of RC in both samples. Overall, 31 studies (53%) used low or high RC including outdoor activities such as spider's web, river crossing and team belay. The second most prevalent type of a program was the wilderness expedition (22%), followed by the combination of RC

and wilderness (14%), with a remaining 10% using a combination of both OT and in class training.

It is interesting to mention that there is evidence that high RC such as Odyssey and WE are related to higher scores in personal attributes and interpersonal skills. Correspondingly, it was also found that participants in RC gain higher improvements in problem solving and personal control than those who attended class training. Expedition-based wilderness programs had more observed effects than low and high RC. Also, the debriefing session was recognized as a major factor contributing to the effectiveness of an OT program, as it allows transferring the acquiring skills into the real life and into the workplace. Particularly, in relation to teamwork, those groups that received debrief discussions were able to gain higher levels of teamwork skills and retain the benefits longer.

Relatively with the observed outcomes in the selected studies, an important focus on the leadership skills domain was noticed with 94 reports. In this domain, the highest located competencies were team development (n = 32 reports), empowerment/delegation (n = 16) and change leadership (n = 13). The second frequent domain of outcomes referred to personal attributes with 63 reports. In this category, common competencies for both samples were found to be accurate self-insight (n = 19 reports), positive disposition (n = 15) and driving for results (n = 8). The third higher appearing domain of outcomes recounted interpersonal skills including overall 51 reports, with the most often observed competencies to be communicating with impact (n =22), the development of strategic relationships (n =18) and cultural interpersonal effectiveness (n =11). The conclusive domain of outcomes included skills directly related to business/management with 41 reports.

Core competencies derived in this category were those of managing the job (n = 16 reports) and operational decision making (n = 14).

Exploring the existence of any possible differences between the professional and the student sample, split analysis of the observed outcomes in the selected studies illustrated some main differentiations. In the case of the professional sample an overwhelming majority of the studies (n = 28) addressed competencies of leadership compared with the student sample (n = 19). The next highly identified outcomes associated with interpersonal skills (n = 17 studies), business skills (n = 15) and personal attributes (n = 15). Consequently, in studies consisted of student sample, a central portion (n = 22 studies) mentioned indicates both interpersonal and personal competencies, followed by leadership (n = 19 studies) and business competencies (n = 15). Although the above indentified differences, should be interpreted carefully, as there was a very broad variety of observed outcomes.

This particular review attempts to classify the main competency domain by summarizing the specific competencies associated with them in an effort to provide a better definition of those characteristics. A possible interpretation of the analysis of the outcomes is that professionals had on average 11-20 years of working experience, and this factor possibly contributed to their attitude of rethinking or reframing the leadership developmental needs. As a consequence of being in a position of responsibility and facing all the challenges of current workplace turbulence, they are able to realize the need of new areas of improvements in their professional capacity to a greater extent. On the other hand, students are not exposed yet to real workplace demands, and the main objective of education is mostly concentrated to preparing active citizens with those capabilities and skills that make them valuable to the community. So the research conducted in the field of education, possibly is more

oriented on investments on social (interpersonal) and personal attributes such as accurate self-insights and positive dispositions.

Despite differences identified in the competency level, some deficiencies in the observed outcomes also noticed which constitute important areas of future investigation. With respect to personal attributes, in both samples positive changes in competencies such as valuing diversity, adaptability and learning orientation were limited or total absent. Additional competencies that had few or a total absence of references of positive outcomes were the customer orientation, selling the vision, business acumen, entrepreneurship, global acumen, mobilizing recourses and executive disposition.

The findings of this systematic review provide valid information for planning and applying an experimental OT program, by gathering all useful research details about the participants, the methodology, the type of intervention and the content of the outdoor activities used. In analyzing the frequency of the applied methods and the observed outcomes, the conceptual framework of utilizing the power of outdoor training and its contribution to PD is outlined clearly. An important aspect of this review is that OT seemed to comprise a powerful developmental tool for professional and personal growth, with significant inputs in leadership talent competencies. Perhaps one of the most critical challenges the business world is facing globally is preparing a new generation of leaders. There is a growing need of continuous training and developmental efforts in any stage of the career from the very early studying years up to even the most executive positions. As leadership is about the interrelations of team members who share common objectives for success.

CHAPTER IV

RESEARCH METHODS AND PROCEDURE

This chapter presents the **research** methods and procedures used **in** this study and it is divided into the following sections: (i) research design; (ii) description of intervention; (iii) participants, (iv) instruments used; (v) instruments validity and reliability; (vi) data collection, (vii) data analysis procedures, and synopsis.

Research Design

This study used a mixed research method with qualitative and quantitative data. Applying the qualitative method of observation, the study appeared clearer by approaching the process of learning during training as a main outcome and by providing a way of cross-checking with participant TDI scores. Using the quantitative method of questionnaires, emphasis was given on the measurement and analysis of causal relationship between the training and the dependent variables (outcomes) based on attitude scores of the participants. The subjects were from two different samples of professionals and undergraduate students, who participated in a two-day outdoor training during the year of 2012. The dependent variables, teamwork and leadership were measured following a retrospective pretest-posttest design. The pre-test was provided not at the beginning of the intervention but after, simultaneously with the post-test.

This quasi-experimental research study used a two single cases analysis without a control group. The data were analyzed separately for each group because they had major differences in their background with the most determinant differences being the lack of working experience in the case of students and the big variance of age. Using a single group design without a control group is considered an appropriate research approach to evaluate training programs and measure individual growth and

learning (Carlson & Schmidt, 1999). Moreover, it has been found (Collins & Holton, 2004) that studies which apply single group pre-post test to explore cause –effect relationships between the training intervention and the participants' learning outcomes have higher effect sizes compared with post-test only with control or pre-post test with control.

In an effort to triangulate the analysis of findings, this study provided additional criteria for the evaluation of the training program. A TDI observation sheet was completed by an observer on each group of participants at the beginning of the training. This group assessment offered a different resource of verifying the pre-existing teamwork attitudes of participants. Additionally, in order to estimate the magnitude effect of the training, effect sizes were calculated as it is considered an important method in studies of training program evaluation. Lastly, by using a well established research instrument such as the MLQ, the study had the opportunity to compare the participants' post-test scores with norms and ideal scores that are available from Bass and Avolio (2004).

Participants

A convenience sample was used to select a group of professionals and a group of students. The reason for heterogeneity of sampling was because in this study, the primary interest was the broad and diverse range of views represented. The convenience sample of this study consisted of 81 participants, where 51 were professionals (26 men and 25 women) and 30 undergraduate students (12 men and 18 women).

Description of intervention

The training program was designed to address teambuilding and leadership development. Its total duration was two days and participants were assigned in groups of 8-10 persons. During the first day, prior to training a through safety briefing was given to participants, and a clear description of the objectives of the training as well **as** their significant role of active involvement in the process of the achieved learning. The program started with warm-up activities also known as icebreakers and energizers. The aim of these activities was to provide opportunities for participants to be familiarized with each other, start interaction among the team members, and start achieving a basic level of physical trust before moving into more complex interactions through the outdoor activities. The three icebreaker activities that participants played were: (1) the name game, (2) everybody up and (3) human knot. Typically, each of those activities took 15–20 minutes to be completed.

The next session included more demanding activities, all increasing in difficulty, with an average duration of 30-45 minutes each. In this session, each group participated in a total five challenges, which were the following: (1) nitro crossing, (2) spider's web, (3) the perfect square, (4) outside of the circle, and (5) toxic waste. Following each element, the facilitator led a short debrief session about the progress of the group in the provided challenges. At the end of this second session, all teams gathered and exchanged their views on their success and failure in each challenge. At the same time, all instructors gathered the results from their group observation through the Team Development Indicator (TDI-observer sheet) and helped the procedure of the debriefing by focusing on the strong or weak points that were observed during the whole day of the outdoor training.

The second day of training included a scenario of monopolis game. Each group had to choose only four out of the the five given outdoor challenges to participate in. Their aim was to gather the maximum possible points adding the points gained from each activity. Each game score was based on each activity's predetermined difficulty and the successful completion of each activity. Each team got enough time to design its strategy according to these two factors. The team that manages to get the highest score declared the winning team. The challenge options were the following: the islands, lean on me, space escape, human ladder and stepping stones. The total duration of this game was four hours.

A debrief discussion focused on deriving meaning from participant's experiences during the whole training and how to transfer new learning into real life situations took place at the end of this session. Discussion aimed to take lessons from the experience by identifying those behaviors and competences that participants demonstrated which were found to be the most effective in reaching the team goals. Also, the use of metaphor was a crucial element of the debrief session, as it allowed for the transferring of lessons learned during the 2-day training such as challenges that participants had to solve and cop**y** to real world situations. All outdoor challenges that were chosen for this training intervention are presented with a short description at appendix A with the title of outdoor challenge material.

Instrumentation

Multifactor Leadership Questionnaire (MLQ)

The Multifactor Leadership Questionnaire (MLQ-self evaluation form 5x) which measures the leadership behaviour (Bass & Avolio, 1997), is widely used. It contains 45 self-report items that participants rate on a 5-point Likert-type scale, ranging from 0 (Not at all) to 4 (Frequently if not always). A lower classification in a

specific item indicates an inferior display of this behavior by the evaluated leader and not a greater or minor valuation of this behavior on the part of the respondent. It measures three types of leadership behaviors: *transformational*; *transactional;* and *passive-avoidant leadership*. Also it contains three outcomes of leadership styles such as: *co-worker extra effort, perceived effectiveness of leadership* and follower *satisfaction with leadership*.

The first type of leadership behavior was the transformational. Leaders who belong to this category, usually act with integrity, build trust among followers, coach people, encourage innovative way of thinking and provide inspiration to the individuals they lead. The five scales used to measure transformational leadership factor were:

(1) Idealized influence-attributes (IA = 4 items),

(2) Idealized influence-behavior (IB = 4 items),

(3) Inspirational motivation (IM = 4 items),

(4) Intellectual stimulation (IS = 4 items) and

(5) Individual consideration (IC = 4 items).

The second type of leadership behavior was the transactional. It is believed that transcactional leaders tend to monitor mistakes, by keeping track of mistakes, concentrating on errors and on the treatment of any deviations from the standards. Two scales were used to measure transactional leadership factor acting such as:

(1) Contingent reward (CR = 4 items) and

(2) Management by exception-active (MBEA = 4 items).

The last type of leadership behavior was the passive-avoidant. The leader in this category follows an overall passive reaction to situations and problems which arise. Furthermore, the leader believes that a problem will disappear or solve itself in

time. The two scales used that measure passive-avoidant leadership factor appeared to be:

(1) Management by exception-passive (MBEP = 4 items) and

(2) Laissez-faire leadership (LF = 4 items).

Additionally, the MLQ instrument evaluated leadership efficiency by pointing out related outcomes such as the ability of the leader to generate extra effort in his/her followers. Another related outcome was the level of the leaders' efficiency, by satisfying the professional needs of their role in any organizational structure they are involved in. The last outcome was the ability of the leader to generate interpersonal satisfaction in his/her colleagues. Particularly, three scales were used to measure outcomes of leadership:

(1) Extra effort (EE = 3 items),

(2) Effectiveness (EFF = 4 items) and

(3) Satisfaction (SAT = 2 items).

In the following Table 14 are presented the leadership construct per factor and individual statements relating to the specific construct in the MLQ 5-x-Short Form.

Table 14. MLQ construct per factor of leadership

Leaderhip factors	Leadership Construct scales	Item Number	Item Statement
Transformational	**Idealized influence-attributes (IA)**	10	Instills pride in others for being associated with him/her
		18	Goes beyond self-interest for the good of the group
		21	Acts in ways that builds my respect
		25	Displays a sense of power and confidence
	Idealized influence-Behaviour (IB)	6	Talks about their most important values and beliefs
		14	Specifies the importance of having a strong sense of purpose
		23	Considers the moral and ethical consequences of decisions
		34	Emphasizes the importance of having a collective sense of mission
	Inspirational Motivation (IM)	9	Talks optimistically about the future
		13	Talks enthusiastically about what needs to be accomplished
		26	Articulates a compelling vision of the future
		36	Expresses confidence that goals will be achieved
	Intellectual stimulation (IS)	2	Re-examines critical assumptions to question whether they are appropriate
		8	Seeks differing perspectives when solving problems
		30	Gets me to look at problems from many different angles
		32	Suggests new ways of looking at how to complete assignments

	Individual consideration (IC)	15	Spends time teaching and coaching
		19	Treats me as an individual rather than just as a member of a group
		29	Considers me as having different needs, abilities, and aspirations from others
		31	Helps me to develop my strengths
Transactional	**Contingent Reward (CR)**	1	Provides me with assistance in exchange for my efforts
		11	Discusses in specific terms who is responsible for achieving performance targets
		16	Makes clear what one can expect to receive when performance goals are achieved
		35	Expresses satisfaction when I meet expectations
	Management by exception-active (MBEA)	4	Focuses attention on irregularities, mistakes, exceptions and deviations from standards
		22	Concentrates his/her full attention on dealing with mistakes, complaints, and failures
		24	Keeps track of all mistakes
		27	Directs my attention to failures to meet standards
Passive-avoidant	**Management by exception-passive (MBEP)**	3	Fails to interfere until problems become serious
		12	Waits for things to go wrong before taking action
		17	Shows that he/she is a firm believer in "If it ain't broke don't fix it "
		20	Demonstrates that problems must become chronic before I take action
	Laissez-faire leadership (LF)	5	Avoids getting involved when important issues arise
		7	Is absent when needed
		28	Avoids making decisions
		33	Delays responding to urgent questions
Outcomes of leadership	**Extra effort (EE)**	39	Gets me to do more than they expected to do
		42	Heightens my desire to succeed
		44	Increases my willingness to try harder
	Effectiveness (EFF)	37	Is effective in meeting my job-related needs
		40	Is effective in representing me to higher authority
		43	Is effective in meeting organizational requirements
		45	Leads a group that is effective
	Satisfaction (SAT)	38	Uses methods of leadership that are satisfying
		41	Works with me in a satisfactory way

Team Development Indicator (TDI-self report)

Perceptions of team effectiveness were measured with the short version of the Team Development Indicator (TDI-s) consisting of 10-items. The TDI was selected for its accuracy in measuring teamwork on strong and weak points on individual and team levels. Likewise, it is the most frequent used instrument in experienced-based training interventions and development research (Bronson, 1991). Some examples of questions were 'understanding and commitment to goals', 'prompt decision making and solution initiation' and 'high standards for own and team's performance'. The

participants were asked to score each item of the questionnaire on a 5-point Likert-type scale, ranging from 1 (poor) to 5 (exceptional).

Team Development Indicator (TDI-observer sheet)

The Team Development Indicator (TDI-observer sheet) was used by the researcher to track experimental group participant behavior through the first day of the outdoor training. The questionnaire was exactly the same as the self report version consisting of 10-items. Each instructor followed the same group the whole day so it was possible to observe the progress of teamwork in the first five challenges and give an average score for each team at the end of the day.

The final part of the questionnaire included the demographic characteristics related to gender; age; education level; year of study; work position; years of work experience; annual salary; number of different workplaces; and years in a position of responsibility.

Instruments validity and reliability

Translation of instruments

Both questionnaires used in this study TDI and MLQ, were translated from English into Greek language, by a panel of experts including academics and professionals in the fields of sport and business management, statistics and research methodology.

Pilot study carried out

The role of implementation of a pilot study was mainly to test adequacy of research instruments. For example the wording referring to the translation of the meaning of each question, and the order of the questions, as both pre and post were measured at once. Furthermore, it was also helpful in identifying potential practical problems following the research procedure (such as the duration of the training intervention, points of interest in observation and time of completing the TDI observation check list, taking notes for debrief sessions, and the time needed for completing the research instrument).

Thirteen volunteer rescuers from Greece participated in this pilot study, of who ten were male and only three female. Their age ranged from 19 to 47 years old, with an average age of 39.9 years old and they had been members of a rescue team/club on average for 4.9 years. The data were collected through two different questionnaires: the Multifactor Leadership Questionnaire (MLQ-self report) of Bass and Avolio (1997) and the Team Development inventory (TDI-S) of Bronson et al. (1992) at the end of the 2-days outdoor training.

Essential information was provided on the structure of the given answers, by asking the subjects for feedback and recording the time taken for the competition of the whole questionnaire. Both questionnaires TDI and MLQ were completed twice due to the retrospective pretest-posttest study design, by one referring to pre post estimations and one referring to post training estimations. A long time was consumed to complete the instrument and from the feedback received it was difficult for the participants to answer the questions as they were not on same page referring both pre and post at once. Thereafter, it was decided that the structure of the questionnaire should be revised so that each question would appear on the same page. This method

would reduce the time needed to complete the survey. Finally, estimating the internal-consistency reliability with N = 13, the alpha coefficients were .96 and .89 for the MLQ (45-items) and TDI (10-items) instruments, respectively.

Instrument validity

The selection of the MLQ instrument was reliant on its wide use as it has been tested in a number of settings, in the international context and it has proven to be a strong predictor of leader behavior across a broad range of organizations (Bass & Avolio, 1997).

The TDI was selected for its accuracy in measuring teamwork on strong and weak points on an individual and team level. Likewise, it is the most frequent used instrument in experienced-based training interventions and development research (Bronson, 1991).

Instrument Reliability

In order to assure the psychometric properties of the translated questionnaires, internal consistency measures of reliability were computed for both instruments used in this study by calculating Cronbach's alpha coefficients. The results of the analyses can be seen in Table 15. As shown in the table, all coefficients in pre and post measures were judged to be acceptable with alpha being greater than .70. With an exception of the transactional leadership at the pre-test which was .63. In the case of the TDI questionnaire the average of total alpha score of the Greek version (.90) was in accordance with the original alpha score (.95) reported by Bronson et al. (1992). Respectively, the MLQ average of total alpha was found to be .90.

Table 15. Cronbach's alpha reliability estimates for TDI and MLQ

Name of the scale	Cronbach's Alpha	N of items
TDI pre	.918	10
TDI post	.879	
MLQ scales		
Transformational pre	.893	20
Transformational post	.901	
Transactional pre	.628	8
Transactional post	.714	
Passive leadership pre	.787	8
Passive leadership post	.776	
Outcomes of leadership pre	.854	9
Outcomes of leadership post	.850	
Leadership total pre	.879	
Leadership total post	.874	45

Data collection

The data were collected during 2012. Both MLQ and TDI questionnaires were administered at the end of the intervention, following a retrospective pretest-posttest design. The pre-test was given not at the beginning of the intervention but after, simultaneously with the post-test. The reason for this as highlighted by Sibthorp et al. (2007), is because it is proved as the preferred method of collecting data, when using self-report measures in a training program. Employing a retrospective pretest-posttest design minimizes the response shift bias where the pre test score appeared lower than the post-test, indicating a potential ineffectiveness of the intervention to improve an increased level of chosen outcomes.

Further support for the value of this method is well documented in a research of Pratt, McGuigan and Katzev (2000). When response shift bias is present, the use of retrospective is preferred instead of the traditional pre-post approach, because it eliminates the occurrence of either under or over estimation of program impacts. Considerably, this method is mostly adopted for disclosing self-assessed changes that

arise as an outcome of an intervention. In view of this approach, Allen and Nimon (2007) illustrate that it is a powerful assessment tool in the field of professional development, by providing reliable insides of learning and performance improvements gained. Accepting the subsequence of complexity that exists in the evaluation of a developmental program, this measurement technique contributes to a clearer estimation of the program outcomes. Moreover, it has been suggested that participants face difficulty to judge their pre-intervention behavior objectively because they do not have sufficient information about the nature of the program. As a result in most cases, there is a tendency of overestimating the level of their actions. Therefore, the use of retrospective pretest method reduces the response shift bias and increases the possibility that the observed outcomes are by cause of the intervention effect.

Ethical considerations

The participants of the study were informed about the right to privacy and voluntary participation, the anonymity and confidentiality. In terms of their participation in the outdoor intervention participants were informed about the physical safety concerns of their active involvement in the series of outdoor activities and reveal the appropriate safety information. Lastly, information was provided about the potential benefits of their active involvement in the outdoor challenges and how their behaviors and actions shape the process of personal growth and development. More specifically, the objectives of the training allow the program to target the actual learning points, as outdoor training is principally driven by process, and not by content.

Data analysis procedures

Data were analyzed using the Statistical Package of Social Science (SPSS) version 19 software. The factor scores of MLQ questionnaire were calculated for each respondent by using the average of the relevant questions**.** In the case of TDIs scores, only the total teamwork scores were calculated. In the descriptive section of the results means and standard deviations are presented for each of the factors measured that were generated for pre and post measurements. The assumption of normality was examined using the Shapiro-Wilk tests. Statistical significance for all measures were set at the .05 level of confidence.

To test hypothesis one and two, the Wilcoxon matched pair rank test was used for the determination of the significant difference between the pre- and post-test average scores of participants for each of the ten items of teamwork and leadership scales. Additionally, in order to investigate the effectiveness of the training, effect sizes were calculated based on the particular formulas for single group pretest-posttest which adapted by Corder and Foreman (2009). On the basis of the *r* ES approach it uses existing research of Cohen's effect size estimates. Cohen (1988) suggested three categories small (r = .10), medium (r = .30), and large (r =.50).

To test hypothesis three, Mann-Whitney test was used to determine whether there was any systematic or consisted difference between the two samples in post teamwork and leadership scores.

To test hypothesis four, if there were any differences among participants of each group in post teamwork and leadership scores based on demographic variables, Whitney U test and Kruskal-Wallis test were used.

CHAPTER V

PRESENTATION AND ANALYSIS OF DATA

This study was instituted to investigate the immediate effect of adventure training on leadership and teamwork behaviors. This chapter of results is divided into four sections. The first section presents demographic information of the sample. The second consist of descriptive statistics obtained from the scores of the pre-post tests for teamwork and leadership scales, observer scores in teamwork and norms scores in leadership. The third part presents the inferential statistics generated by an analysis as well as the effect size calculations. The last part consists of qualitative data obtained from observation and debriefing sessions during the participation in OT.

Demographic Data

Demographic data were collected through the questionnaire given to each participant at the end of the outdoor training program. Demographic information included gender, age, education level, participants' year of studies, work position, years of work experience, years of senior manager role, number of working environments and salary. The convenience sample of this study consisted of 81 participants, of whom 51 were professionals (26 men and 25 women) and 30 undergraduate students (12 men and 18 women). Because of the diversity of the participants profile characteristics, a comparative summary of both groups **is** provided for each of the demographic variables.

The first group of student sample included 30 undergraduates, 15 third-year and 15 fourth-year students of University of Peloponnese (Department of Sport

Management) between the ages 20 and 23 years (M = 21.4, SD = 1.01). The second group included 51 professionals, of whom 20 were bank executive directors, 18 managers and 13 were administrators in a variety of private companies. Their age variance was from 24 to 58 with an average of 36.35 (SD = 9.12) years. Equally, the age categories of above 35 and 30-34 years old had the same percentage (39.2%). Regarding to their work experience, the majority (39.2%) had more than eight years of work experience, with 20 (39.2%) being in senior manager role over 4 years and 36 (70.6%) having changed at least one workplace environment. Most participants in this group even attend**ed** postgraduate studies (n=32 International MBA) or had a master's degree (n=5). Lastly, in relation to their annual income, 31 of the professional sample (60.8%) reported an income in the 0-30.000€ category. Table 16 provides a summary of the demographic information per study sample.

Table 16. Demographic information per study sample

	Frequency = N	Percent %	Frequency = N	Percent %
	Professional sample		***Student Sample***	
Gender				
Male	26	51	12	40
Female	25	49	18	60
Age, M, SD (range)	36.4 ± 9.1 yrs (24-58)		21.4 ± 1.0 yrs (20-23)	
Education				
Undergraduate	14	27.5	30	100
Master	37	72.5		
Working experience only for the professionals				
1-4 years	12	23.5		
5-7 years	19	37.3		
8 ≥	20	39.2		
Number of workplace environments				
1-2	36	70.6		
3≥	15	29.4		
Years of senior manager role				
0 years	20	39.2		
1-4 years	11	21.6		
4≥ years	*20*	*39.2*		
Annual income				
0-30.000€	31	60.8		
30.001€-50.000€	13	25.5		
50.001€-100.000€	7	13.7		

Descriptive statistics

This section includes descriptive results and is divided into three main parts which are: (a) the self-assessment scores of pre-post tests for teamwork and leadership scales; (b) team development inventory (TDI) observer sheet scores compared with participant TDI scores; and (c) Multifactor leadership questionnaire (MLQ) post scores compared with norms and ideal scores provided by Bass and Avolio (2004). Additionally, non parametric independent t-tests were done to establish whether the two groups of participants differed in the pre-test level regarding teamwork and leadership behaviors.

Teamwork self-assessment scores of pre-post tests

Participants were asked to appraise the pre-existing team climate, with their responses presented in Figure 19. An overall 22.2% of the professionals considered teamwork in a great level, 17.5% in a good level, 15.9% in an exceptional, and 5.3% in an adequate level. Respectively, a great proportion of students considered the pre-existing teamwork in a great level (13.8%) and an exceptional level (12.7%).

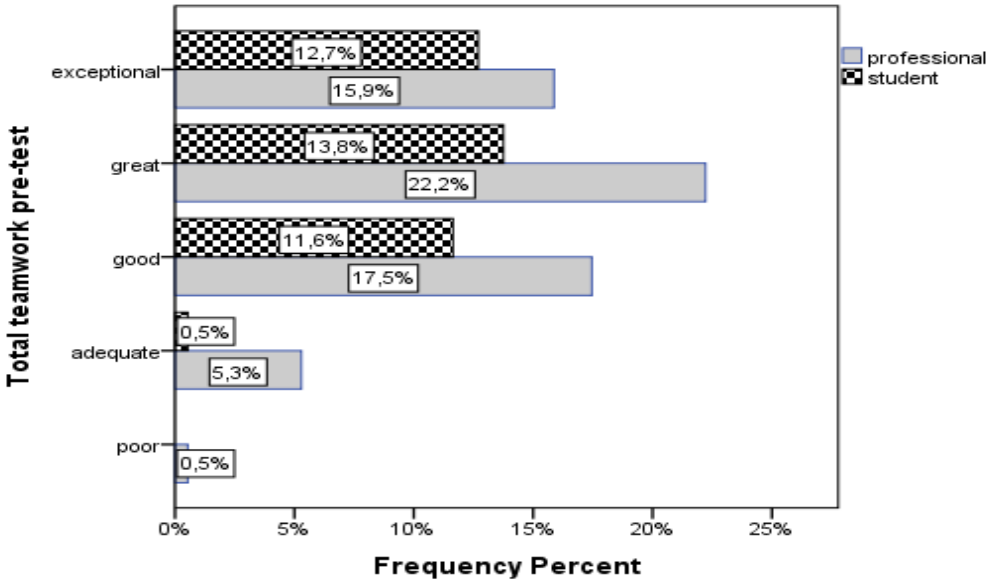


Figure 19. Total teamwork pre-test self-assessment scores per group

Self-report analysis revealed some weak and strong points of their team attitude before taking part in the adventure treatment. Referring to the items with the lowest score behaviors, in the case of the professional sample 'listening & understanding' (*M* = 3.69) as well as 'confrontation of conflict' (*M* = 3.76) were recognized. In addition, in the case of the student sample, they recognized the behaviors: 'commitment to goals' (*M* = 3.90) and 'confrontation of conflict' (*M* = 3.93) scored the lowest. In Table 17 are presented the means of TDI pre-post test scores per group.

Table 17. *Means of TDI pre-post test scores per group*

	M pre *Professionals (n=51)*	*M* pre Student (n=30)
Commitment to goals	4,06	3,90
Interest in one another	3,92	4,17
Confrontation of conflict	3,76	3,93
Listening & understanding	3,69	4,23
Decision making & solution initiation	3,78	3,97
Respect individual differences	3,98	4,20
High standards for performance	3,80	4,33
Look for help on resolving challenges	4,02	4,37
Reward of team efforts	4,14	4,53
Encourage & appreciate feedback	3,84	4,50
Total teamwork	**3,90**	**4,21**

Additionally, it was examined if there were any significant differences between the student and professional samples before intervention took place. Normal probability plots and Shapiro-Wilk tests indicated serious deviations of normality; therefore, non-parametric statistical tests were used for the analysis of data. Comparisons between the two groups were made using Mann-Whitney U test, which indicated that overall teamwork was greater for students (*Mdn* = 4.3) than for professionals (*Mdn* = 4), *U* = 965.5, *p* = .49. In fact**,** students appeared to rank significantly higher in four components of teamwork. These are 'listening &

understanding' (U = 519.5, p = .011); 'high standards of performance' (U = 484 p = .003); 'reward of team efforts' (U = 566, p = .034) and 'encourage & appreciate feedback' (U = 444.5, p = .001).

Leadership self-assessment scores of pre-post tests

The leadership scale consisted of three different concepts of full range leadership model which were: (1) Transformational leadership; (2) Transactional leadership and (3) Passive/avoidant leadership style. As can be seen from Figure 20, according to pre test self-assessment the most dominant transformational behaviors in both groups seemed to be 'acting with integrity' ($M_{students}$ = 3.23, $M_{professionals}$ = 3.17) and 'inspiring others' ($M_{students}$ = 3.19, $M_{professionals}$ = 3). No significant differences were found between the two groups referring to transformational leadership behaviors before the training.

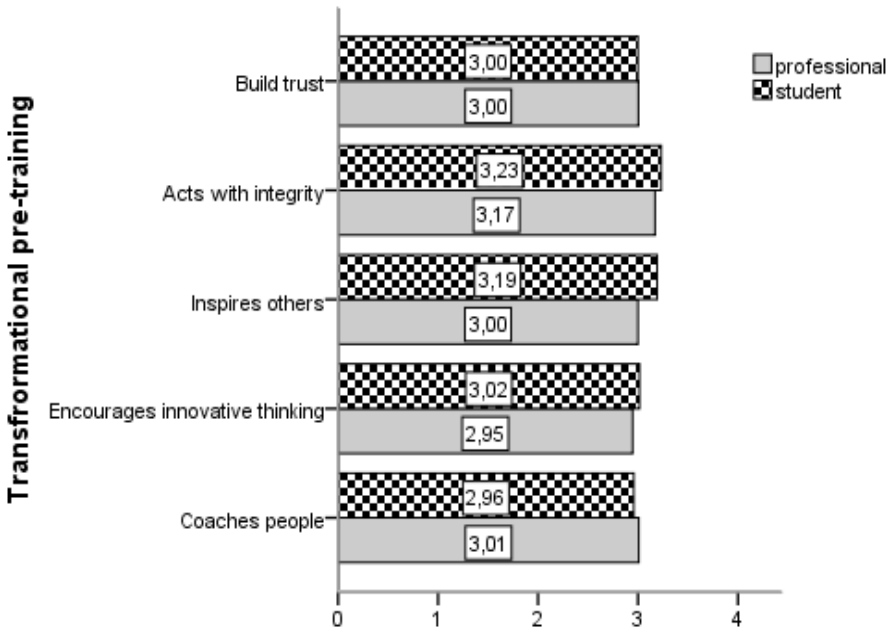


Figure 20. Transformational leadership mean distribution pre training

Referring to the pre-training transactional behaviors from Figure 21 we can see that participants evaluate 'rewarding achievement' ($M_{professionals}$ = 2.98, $M_{students}$ = 2.93) **higher** than 'monitoring mistakes' ($M_{professionals}$ = 2.48, $M_{students}$ = 2.44). No significant differences were found between the two groups referring to transactional leadership behaviors before the training.

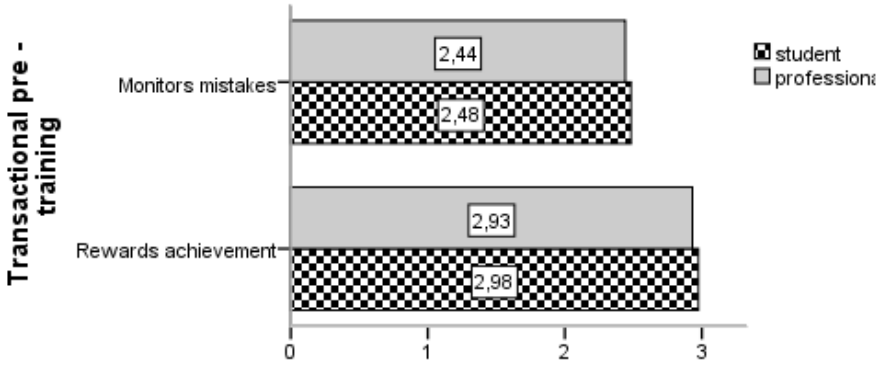


Figure 21. Transactional leadership mean distribution pre training

Comparing the overall scores in both leadership styles, as appeared in Figures 20 and 21, it was noticed that participants in both groups exhibit transformational than transactional leadership behaviors more often. Additionally, participants' pre-training estimation of their passive/avoidant leadership behaviors indicated that both groups 'avoid involvement' ($M_{professionals}$ = 1.09, $M_{students}$ = 1.16) more often than 'fight fires' ($M_{professionals}$ = 0.84, $M_{students}$ = 0.63). Lastly, based on their pre-training estimations on leadership outcomes participants mentioned that their leaders were more possible to even 'generate satisfaction' ($M_{professionals}$ = 3.17) or 'generate extra effort' ($M_{students}$ = 3.10). Figure 22 presents the leadership outcomes pre-training per group. No significant differences were found between the two groups referring to passive leadership behaviors and outcomes of leadership before the training.

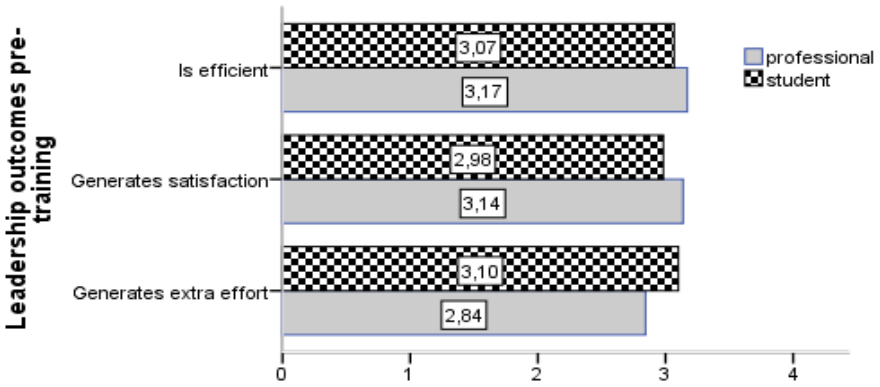


Figure 22. Leadership outcomes mean distribution pre training

TDI observer sheet scores results

The Team Development Inventory (TDI) was used to track group behavior through the first day of the outdoor intervention. The purpose of this instrument was to provide a cross-check with the participant TDI scores. The average scores of each item of TDI were compared with participant's self rating. Comparisons between observer and self-frequency rating showed minor differences in overall teamwork for both professionals (M_{dif} = 0.02) and students (M_{dif} = 0.13). The observer indicated a higher score in six of the ten factors of teamwork.

In the case of the professional group the largest positive difference was in the items of 'confrontation of conflict' (+0.33) and 'listening and understanding' (+0.26), where participants scored higher than the observer. Also, a great difference in the item 'encourage and appreciate feedback' that was negatively (-0.59) evaluated by participants compared to observer scores in the function of the group was located. The student group seemed to evaluate the following two teamwork elements higher: encouraging and appreciating feedback (+0.87) and respecting individual differences (+0.53). Although, participants appeared to have a low (-0.37) sense of their listening

and understanding skills compared to observation scores. The results obtained from the preliminary analysis of observation are presented in Table 18.

Table 18. *Observation analysis of TDI per group*

	Professional (n=51)			Student (n=30)		
	Self M pre	Observ *M*pre	*M* Difference	*Self M* pre	Observ*M* pre	*M* Difference
Commitment to goals	4,06	3,86	+0.2	3,90	4,20	-0.3
Interest in one another	3,92	3,88	+0.04	4,17	4,00	+0.17
Confrontation of conflict	3,76	3,43	+0.33	3,93	3,80	+0.13
Listening & understanding	3,69	3,43	+0.26	4,23	4,60	-0.37
Decision making & solution initiation	3,78	3,53	+0.25	3,97	4,20	-0.23
Respect individual differences	3,98	4,12	-0.14	4,20	3,67	+0.53
High standards for performance	3,80	3,82	-0.02	4,33	4,43	-0.1
Look for help on resolving challenges	4,02	3,94	+0.08	4,37	4,03	+0.34
Reward of team efforts	4,14	4,37	-0.23	4,53	4,20	+0.33
Encourage & appreciate feedback	3,84	4,43	-0.59	4,50	3,63	+0,87
Total teamwork	3,90	3,88	**+0.02**	4,21	4,08	**+0.13**

1= poor, 2=adequate, 3=good, 4=great, 5=exceptional

Norm comparison for leadership participants' post training scores

In this section it was considered purposive to compare the participants' post training scores in leadership with norms and ideal scores that are available from Bass and Avolio (2004). Those scores represented the frequency associated with each of the leadership behaviors observed. The gaps identified between self-reported behavior and those behaviors that are distinctive, provided useful insights for future individual leadership development plans. Overall scores of transformational leadership proved higher than norms and satisfactory within the ideal score in both groups. Professionals differentiate with a variance of ranging from (+0.06 to +0.51) points in all transformational leadership behaviors. Similarly, student sample points of differentiation ranged from (+0.27 to +0.64). In both samples, the greatest score of difference was found in building trust. In transactional leadership behaviors they also scored higher than norms, although the item 'management by exception (active)' was not satisfactory based on the ideal score which suggests to have an equivalent mean

score below 1.5 points. Lastly, in passive leadership and in the effects of leading profile they were above the norm score with a variance of ranging from (-0.37 to +0.32) points for the professionals and (-0.63 to +0.58) for students. Table 19 summarizes the results of the mean differences between the posttest scores compared with norms and ideal MLQ scores.

Table 19. *Norm Comparison MLQ self post training scores*

MLQ Scale	Mean	Mean	Norm	Mean Difference		Ideal score
	Profess	Student		**Profess**	**Student**	
Transformational						>3.0 to <3.75
Idealized Influence (Attributed)	3.17	3.30	2.66	+0.51	+0.64	
Idealized Influence (Behavioral)	3.36	3.48	3.21	+0.15	+0.27	>3.0
Inspirational Motivation	3.14	3.46	3.08	+0.06	+0.38	>3.0
Intellectual Stimulation	3.19	3.50	3.12	+0.07	+0.38	>3.0
Individual Consideration	3.27	3.15	2.87	+0.4	+0.28	>3.0
Transactional						2-3
Contingent Reward	3.19	3.38	3.08	+0.11	+0.30	>2.0
Management-by-Exception (Active)	2.70	2.70	2.43	**+0.27**	**+0.27**	<1.5
Passive/Avoidant Leadership						0-1
Management-by-Exception (Passive)	0.86	0.60	1.23	-0.37	-0.63	<1.0
Laissez Faire	0.61	0.36	0.88	-0.27	-0.52	<1.0
Outcomes						
Extra Effort	3.19	3.61	3.03	+0.16	+0.58	
Satisfaction	3.22	3.37	3.08	+0.14	+0.29	
Effectiveness	3.30	3.24	2.98	+0.32	+0.26	

0=never, 1=once in a while, 2=sometimes, 3=fairly often, 4=frequently if not always

Inferential statistics

This section includes inferential statistics results to test the research hypotheses and is divided into three main parts which are: (i) the significant differences between pre-post TDI scores and the estimation of effect size (ES) per group, (ii) the significant differences between pre-post MLQ scores and the estimation of ES per group, (iii) any significant differences between professional and student group in post TDI and MLQ scores, and (iv) any differences in TDI and MLQ based on demographic characteristics of each group.

In order to check whether the collected data followed the assumption of parametric tests, an explanatory analysis was performed. The assumption of normality was tested by means of the Shapiro-Wilk test. Normal probability plots and the Shapiro-Wilk test indicated serious deviations of normality. Since the normality assumption is not satisfactory, non-parametric analysis were performed for the analysis of data. The following Table 20 summarizes the results of test normality for total teamwork and for each of the 6 subscales of leadership both in pre and post intervention.

Table 20. Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
partictype		Statistic	df	Sig.	Statistic	df	Sig.
professional	**totalteampre**	,123	51	,052	,953	51	,043
	totalteampost	,086	51	,200*	,965	51	,134
	TRANFOpre	,081	51	,200*	,974	51	,318
	TRANSFOpost	,142	51	,012	,893	51	,000
	TRANSApre	,095	51	,200*	,968	51	,182
	TRANSApost	,096	51	,200*	,973	51	,281
	PASSIVEpre	,142	51	,012	,901	51	,000
	PASSIVEpost	,098	51	,200*	,912	51	,001
	EEpre	,166	51	,001	,931	51	,005
	EEpost	,178	51	,000	,924	51	,003

	SATpre	,225	51	,000	,883	51	,000
	SATpost	,254	51	,000	,864	51	,000
	EFFpre	,213	51	,000	,907	51	,001
	EFFpost	,189	51	,000	,913	51	,001
student	**totalteampre**	,135	30	,173	,945	30	,126
	totalteampost	,158	30	,053	,893	30	,006
	TRANFOpre	,111	30	,200*	,965	30	,401
	TRANSFOpost	,088	30	,200*	,967	30	,469
	TRANSApre	,174	30	,020	,939	30	,084
	TRANSApost	,171	30	,025	,937	30	,075
	PASSIVEpre	,120	30	,200*	,951	30	,181
	PASSIVEpost	,159	30	,050	,850	30	,001
	EEpre	,179	30	,015	,890	30	,005
	EEpost	,206	30	,002	,870	30	,002
	SATpre	,169	30	,029	,918	30	,024
	SATpost	,292	30	,000	,847	30	,001
	EFFpre	,143	30	,120	,959	30	,299
	EFFpost	,188	30	,008	,919	30	,025

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

The need for including ES estimates when reporting on the findings of a quantitative study is widely accepted (Grissom & Kim, 2005; Ivarsson, Andersen, Johnson, & Lindwall, 2013; Kline, 2004, Turner & Bernard, 2006). More specifically, the American Psychological Association (APA, 2010) in their publication manual underprin this point of view by adding that reporting only the inferential statistics (e.g. derived *p* value) is insufficient because readers have limited perspective on the practical significance or the meaningfulness of the results. There is a broad number of different effect-size indicators. For the estimation of the magnitude of the change, the *r* ES was used. This is the equivalent non-parametric ES which is suggested by Corder and Foreman (2009) as an appropriate ES for the matched-pair samples. This

particular ES was calculated manually through excel software, using the following formula: r = $|z|$ /√N. Specifically, in this formula $|z|$ is the absolute value of the Z-score that SPSS produces. Moreover, it is worth mentioning that N is the number of observations and not the number of subjects (Gray & Kinnear, 2012). The value of the calculated r ES indicates the degree of association between the percentage of successful interventions before and after the implementation of the intervention. On the basis of the *r* ES approach it uses existing research of Cohen's effect size estimates. Cohen (1988) suggested three categories small (*r* = .10), medium (*r* = .30), and large (*r* =.50).

Differences between the pre- post test TDI scores

In an attempt to answer the first research question, it was expected that if the intervention was effective, professionals' post scores in TDI would be significantly higher than pre-test scores. The Wilcoxon matched pair rank test was used to determine whether there is a significant difference between the pre- and post-test average scores of participants for each of the ten items of teamwork scale. The null hypothesis for Hypothesis 1 was rejected for all dimensions of teamwork with an exception of the following three: (i) the commitment to goals (*Z* = -1.53, *p* = .127, *r* = .15), (ii) decision making and solution initiation (*Z* = -1.58 *p* = .11, *r* = .16) and seeking help on resolving challenges (*Z* = -1.06, *p* = .29, *r* = .11).

Further, *r* effect size value suggested a low to a moderate practical significance in the remaining seven dimensions. Based on *r* effect size (ES) value a low change was found in the interest in one another (*Z* = -2.8, *p* = .005, *r* =.28) and in the reward of team efforts (*Z* = -2.6, *p* = .010, *r* =.26). The remaining five moderate changes were found in the confrontation of conflict (*Z* = -3.46, *p* = .001, *r* =.34),

listening and understanding (Z = -3.67, p =.000, r =.36), respecting individual differences (Z = -3.67, p = .001, r =.34), setting high standards for performance (Z = -3.75, p =.000, d =.37) and encouraging and appreciating feedback (Z = -3.79, p =.000, r= .38). Furthermore, overall teamwork was found to be perceived higher after training (Mdn = 4.30) than before training (Mdn = 4.00), Z = -4.18, p <.001, indicated a moderate change (r =.41). In total 36 participants of the 51 professionals scored positive in post-test and only 6 scored negative. Table 21 displays the results of the significant test and effect size analysis for differences between the pre and post test scores in professional group.

Table 21. *Differences between the pre and post test TDI scores in professional group*

	Positive ranks	Negative ranks	Z	Sig (2-tailed)	r	(Lipsey 1990 r ranges)
Commitment to goals	12	6	-1,528	,127	.15	low
Interest in one another	20	5	-2,800	,005**	.28	low
Confrontation of conflict	21	4	-3,461	,001***	.34	moderate
Listening & understanding	26	4	-3,668	,000***	.36	moderate
Decision making & solution initiation	20	9	-1,579	,114	.16	low
Respect individual differences	19	3	-3,411	,001***	.34	moderate
High standards for performance	20	2	-3,752	,000***	.37	moderate
Look for help on resolving challenges	14	6	-1,063	,288	.11	low
Reward of team efforts	20	4	-2,591	,010**	.26	low
Encourage & appreciate feedback	27	4	-3,794	,000***	.38	moderate
Total teamwork	36	6	-4,176	,000***	.41	moderate

Z= wilcoxon signed rank test, * p<.05 level, ** p<.01 level, *** p<.001 level, r= effect size

Standart value ES r: 0.1=low size, 0.3 moderate size, 0.5 large size

To determine if there were significant differences between the pre-post test average scores of student participants for each of the ten items of teamwork scale, Wilcoxon signed rank test was used. Additionally, ES calculations estimate the magnitude of the change. As indicated in Table 22, all teamwork dimensions were displayed more frequently after the training at a significant level and indicated a moderate change with a range from r = .30 to r = .45. The biggest difference was

found in showing interest in one another (Z = -3.51, p < .001, r =.45) and the lowest in the dimension of appreciation of feedback (Z = -2.33, p =.020, r = .30). Furthermore, overall teamwork was found to be perceived at a higher level after training (*Mdn* = 4.75) than before training (*Mdn* = 4.30), Z = -4.05, p<.001, by indicating a large change (r =.52). In total 24 participants of the 30 students scored positive in post test and only 2 scored negative. Table 22 displays the results of the significant test and effect size analysis for differences between the pre-post test scores in student group.

Table 22. *Differences between the pre-post test TDI scores in student group*

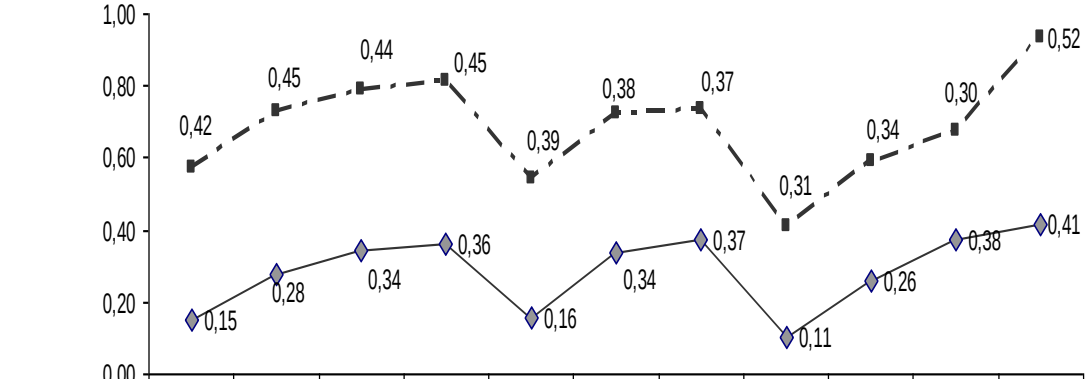
	Positive ranks	Negative ranks	Z	Sig (2-tailed)	r	(Lipsey 1990 r ranges)
Commitment to goals	18	3	-3,274	,001***	.42	moderate
Interest in one another	18	2	-3,508	,000***	.45	moderate
Confrontation of conflict	15	1	-3,441	,001***	.44	moderate
Listening & understanding	14	0	-3,494	,000***	.45	moderate
Decision making & solution initiation	16	3	-2,985	,003**	.39	moderate
Respect individual differences	14	2	-2,980	,003**	.38	moderate
High standards for performance	13	2	-2,828	,005**	.37	moderate
Look for help on resolving challenges	8	1	-2,373	,018*	.31	moderate
Reward of team efforts	8	0	-2,598	,009**	.34	moderate
Encourage & appreciate feedback	6	0	-2,333	,020*	.30	moderate
Total teamwork	**24**	**2**	**-4,046**	**,000*** **	**.52**	**large**

Z= wilcoxon signed rank test, * p<.05 level, ** p<.01 level, *** p<.001 level, r= effect size

Standart value ES r: 0.1=low size, 0.3 moderate size, 0.5 large size

Figure 23, displays the distribution of the effect sizes by giving the subgroup information of the magnitude of the change in each item and in total teamwork. As it can be noticed through the graphical display, comparing the two groups, that of students and professionals, there are some reasonable distinctions. In the case of students the estimation of the total teamwork change was found, on average, large (r = .52) compared with professionals who had, on average, a moderate change (r = .41).

For the student group, the highest magnitude of change was found in the following two teamwork variables, in listening and understanding others (r =.45) and in showing interest in one another (r =.45). Similarly, for the professional group the highest change was noticed in the following two variables that of encouragement and appreciating of feedback (r =.38) and setting high standards (r =.37). Lastly, it is interesting to mention at this point, that in total, five out of ten variables of teamwork the estimation of the change for the professional group was of practical significance. In contrast, the student group demonstrated a moderate change in all 10 teamwork variables.



	commitment to goals	interest in one another	confrontation of conflict	Listening & understandi	decision making &	respect individual	High standards	Look for help on	reward of team efforts	Encourage & appreciate	totalteampre-post
Student	0,42	0,45	0,44	0,45	0,39	0,38	0,37	0,31	0,34	0,30	0,52
Professional	0,15	0,28	0,34	0,36	0,16	0,34	0,37	0,11	0,26	0,38	0,41

Figure 23. Effect sizes distribution per group in each item and total teamwork

Differences between the pre-post test MLQ scores

In an attempt to answer the second research question, changes in pre-post training perceived leadership behaviors were compared using the wilcoxon signed rank test. Also, ES r estimation was used to estimate the magnitude of the effect in

each MLQ factors. In the case of the professional group, both transformational (Z = -4.11, p < .001, r = .41) and transactional (Z = -4.03, p < .001, r =.40) leadership behaviors were displayed frequently, indicating a moderate change, where passive/avoidant behaviors seemed to decrease significantly (Z = -3.97, p < .001, r =.39). What is interesting in this data is that only the outcomes of extra effort (r =.42) and effectiveness (r =.30) demonstrated a moderate change compared with satisfaction (r =.11) which had an ES value of low practical significance. The results obtained from the preliminary analysis of leadership factor differences between pre-post training in professional group are presented in Table 23.

Table 23. *Differences between the pre-post test MLQ scores in professional group*

	Positive ranks	Negative ranks	*Z*	Sig (2-tailed)	*r*	(Lipsey 1990 *r* ranges)
Transformational	35	9	-4,113	,000***	.41	moderate
Transactional	29	5	-4,027	,000***	.40	moderate
Passive/Avoidant Leadership	7	27	-3,971	,000***	.39	moderate
Outcomes: 1. Extra effort	28	3	-4,251	,000***	.42	moderate
2. Satisfaction	13	7	-1,139	,255	.11	low
3. Effectiveness	21	5	-3,035	,002**	.30	moderate

Z= wilcoxon signed rank test, * p<.05 level, ** p<.01 level, *** p<.001 level, r= effect size

Standart value ES r: 0.1=low size, 0.3 moderate size, 0.5 large size

In the student group, two leadership factors that of transformational leadership (Z = -4.31, p < .001, r = .56) and the decrease of passive/avoidant leadership (Z = -3.99, p < .001, r = .52) showed a large change in post training measurement. The greater change was identified in the increase of transformational behavior. Respectively, from the analysis a moderate change in the transactional leadership behavior (Z = -3.76, p < .001, r = 48.) was found. Equally, two outcomes that of extra effort (r = .47) and satisfaction (r = .43) showed a modarate change. Although, the effectiveness appeared to have a low size change (r =.29). Table 24, illustrates the

differences in perceived leadership behaviors before and after the training in student group.

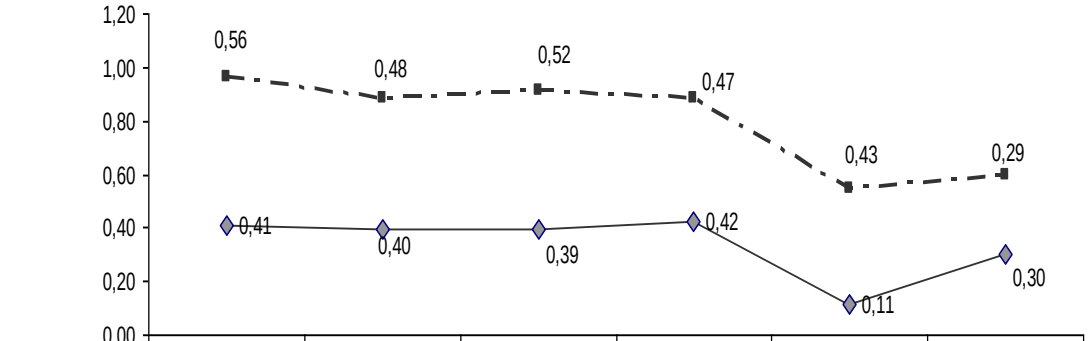
Table 24. *Differences between the pre and post test MLQ scores in student group*

	Positive ranks	Negative ranks	Z	Sig (2-tailed)	*r*	(Lipsey 1990 r ranges)
Transformational	27	3	-4,304	,000***	.56	large
Transactional	25	9	-3,754	,000***	.48	moderate
Passive/Avoidant Leadership	3	24	-3,996	,000***	.52	large
Outcomes: 1. Extra effort	17	2	-3,607	,000***	.47	moderate
2. Satisfaction	17	3	-3,349	,001***	.43	moderate
3. Effectiveness	18	6	-2,279	,023*	.29	low

Z= wilcoxon signed rank test, * p<.05 level, ** p<.01 level, *** p<.001 level, r= effect size

Standart value ES *r*: 0.1=low size, 0.3 moderate size, 0.5 large size

Comparing the magnitude of change in leaderhip behaviors among the two groups, a graphical display was used with the distribution of the effect sizes per group. What is noticed from the Figure 24, is that students received greater (large size) change in leadership behaviors than professionals, in both transformational (r =.56) and a greater reduction in passive/avoidant leadership (r =.52). What is also noticed is that the level of the change in their leadership effectiveness is without practical significance as it was low size effect (r=.29). Similarly, professionals exhibited a moderate change in all three leadership behaviors with a range from (r =.39 up to r =.41). In analyzing the results of leadership professionals respectively, it was found found to have a moderate change in two out of three, with an exception of satisfaction (r =.11) which was not of practical significance.



	TRANSFOpost - TRANFOpre	TRANSApost - TRANSApre	PASSIVEpost - PASSIVEpre	EEpost - EEpre	SATpost - SATpre	EFFpost - EFFpre
Student	0,56	0,48	0,52	0,47	0,43	0,29
Professional	0,41	0,40	0,39	0,42	0,11	0,30

Figure 24. Effect sizes distribution per group in each subscale of leadership behaviors

Differences between professional and student group in post TDI and MLQ scores

The third research question depends on the existence of any significant differences between professional and student groups in post TDI and MLQ scores. To address whether there was any systematic or consisted difference between the two samples, the nonparametric Mann-Whitney test was used. Comparing the immediate changes in display of overall teamwork (Figure 23), a significant difference was found in after reaction with students (*Mdn* = 4.75) perceiving teamwork behaviour more frequently ($U = 343.5$, $p < .001$) than professionals (*Mdn* = 4.30).

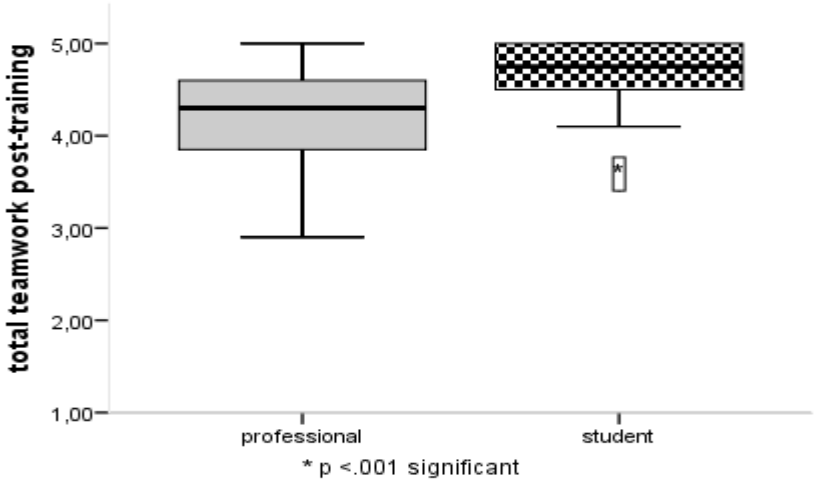


Figure 25. Median difference in total teamwork after training between professionals and students

In relation to the immediate changes in display of leadership, the differences were not significant for transformational and transactional behaviors. The only significant difference was found in passive/avoidant leadership, where the student sample displayed a greater decrease in frequency (*Mdn* = .38) than the professional sample (*Mdn* = .75), *U* = 679.5, *p* = .014. In the three outcomes of leadership the only significant difference was found in generating extra effort, with students scoring higher (*Mdn* = 3.67) than professionals (*Mdn* = 3.00), *U* = 431, *p* = .001. High scores in this particular scale, indicate that participants are more willing to succeed by overstepping difficulties and applying more positive behaviors. Overall, the significant differences which were found in perceived behaviors of teamwork and leadership after training, indicate that changes are higher for students than professionals. Figure 26 compares the median differences found in post training leadership behaviors.

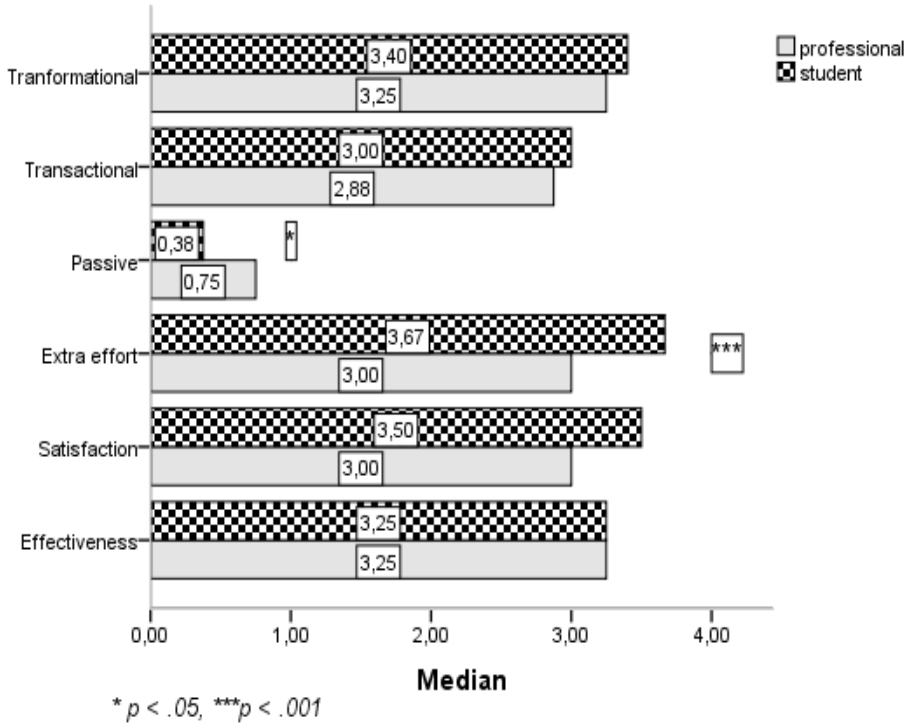


Figure 26. Median differences in leadership after training between student and professionals

Differences in TDI and MLQ based on demographic characteristics of each group

To address whether there were differences among participants, nonparametric tests for independent-samples were conducted for each of the demographic variables (gender, age, education level, years of work experience, annual salary, number of different workplaces, and years in senior manager role). Based on gender Mann-Whitney U test a statistically significant difference in transformational leadership (U = 487.5 p =.002) was revealed, with female (Mdn = 3.50) reporting greater levels than male (Mdn = 3.15) respondents. Also, it was found that female participants (Mdn = 3.50) were more ready/prompt to develop those behaviors that generate satisfaction in

their followers than men (*Mdn* = 3.00), $U = 611.5$ p =.044. Table 25 shows the test Statistics after training distributions based on gender.

Table 25. Test Statistics after training distributions based on gender

	total teamwork	transformational	Transactional	Passive	Extra effort	Generates satisfaction	Effectiveness
Mann-Whitney U	768,000	487,500	713,000	791,000	641,500	611,500	661,000
Wilcoxon W	1509,000	1228,500	1454,000	1532,000	1382,500	1352,500	1402,000
Z	-,465	-3,122	-,987	-,247	-1,696	-2,014	-1,502
Asymp. Sig. (2-tailed)	,642	,002	,324	,805	,090	,044	,133

a. Grouping Variable: gender

Correspondingly, the possibility after the training scores of the appearance of any differences based on the age of participants was examined. According to the three leadership behaviors, participants' frequency score distribution was significantly different among the four age categories only in passive/avoidant leadership style, X^2 = 8.96, p =.030. Pairwise comparisons using the Kruskal-Wallis test (p = .05) revealed that the age category of below 22 years exhibited passive behaviors less frequently than the age plus 35 years (p = .022). From the data in Figure 27, it is apparent that those who belong to the first age category (< 22 years) displayed less passive behaviors (*Mdn* =.38) than older ages with a range of median from .50 to .88.

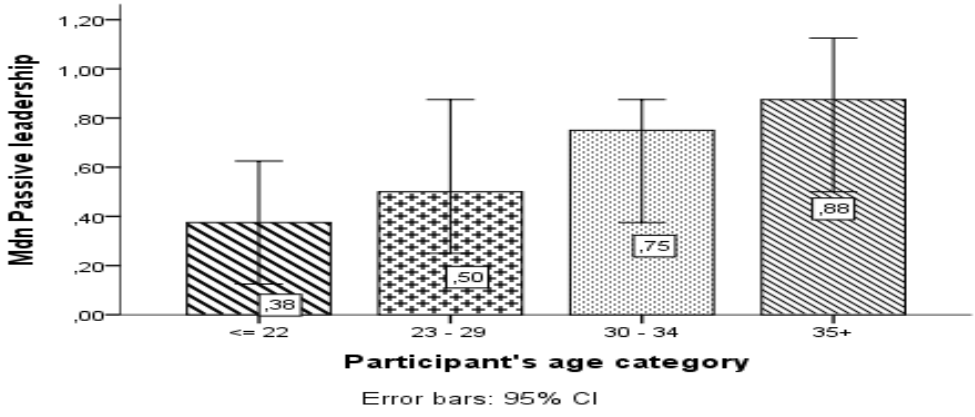


Figure 27. Median distribution of passive leadership after training per age category

It was also found that participant's frequency score distribution was significantly different among the four age categories in generating extra effort, X^2 = 8.96, p =.030. Pairwise comparisons using the Kruskal-Wallis test (p = .05) revealed that the age category of 23-29 years perceived less extra effort than the age category of below 22 years (p = .040) and the age of above 35 years perceived less extra effort than those below 22 years (p < .027). Figure 28 shows the median distribution of extra effort after training per age category.

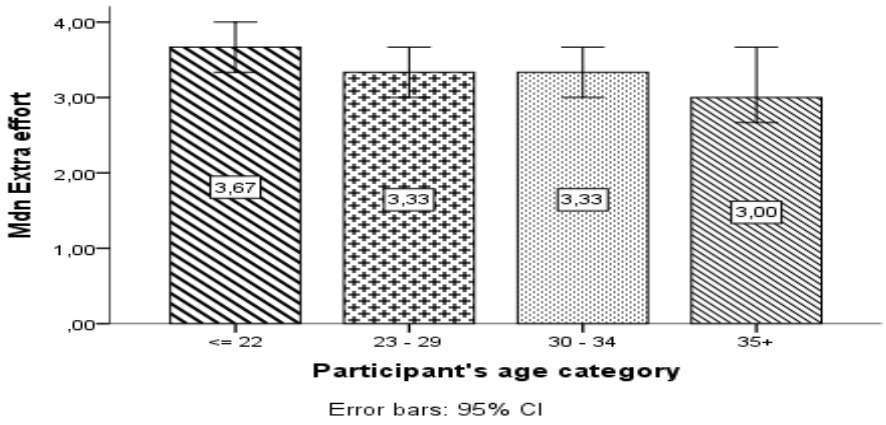


Figure 28. Median distribution of extra effort after training per age category

Further analysis showed more statistical differences based on participant's age in total teamwork after training, X^2 = 25.46, p <.001. Pairwise comparisons using the Kruskal-Wallis test (p = .05) revealed that the age category of plus 35 years exhibited less frequently teamwork than the age category of 23-29 (p = .009) and the age of below 22 years (p < .001). Also, the age category of 30-34 exhibited significantly less teamwork behaviors than the age of below 22 years (p < .014). In Figure 29 there is a clear trend of the response frequency decreasing, with the age category of under 22 years displaying the highest frequency (*Mdn* = 4.80) compared with the rest of the age categories which had a range from 3.90 to 4.50 referring to total teamwork.

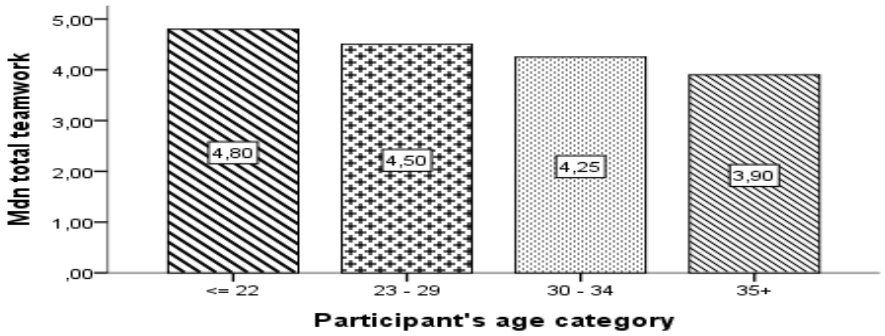


Figure 29. Median distribution of total teamwork after training per age category

Regarding the education level, Mann-Whitney U test did not reveal any statistically significant difference in either behaviors of teamwork or leadership after training. Only in the case of the professional sample it was valuable to test if the work experience had any effect on perceived changes after training. Interestingly, it was found that only the total teamwork distribution was significantly different among the three categories of working years, $X^2 = 9.34$, $p = .009$. Pairwise comparisons by using the Kruskal-Wallis test ($p = .05$) proved that those responders who had more than eight years of working experience, acquired a lower level of teamwork behaviors than those having 5-7 years ($p = .019$). Figure 30 illustrates the distribution of teamwork per years of working.

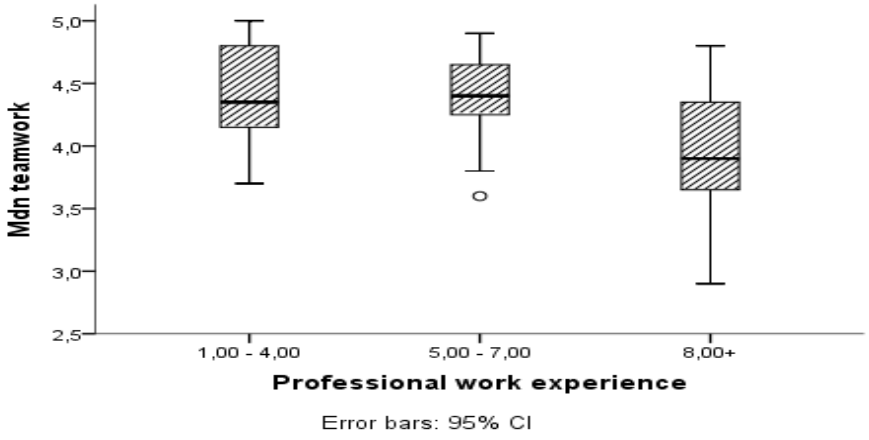


Figure 30. Median distribution of total teamwork after training per work experience.

Furthermore, it was found that the period of being in a position of great responsibility such as CEO in a company, affects only the frequency of teamwork behaviors, $X^2 = 11.21$, $p = .004$. Pairwise comparisons using the Kruskal-Wallis test ($p = .05$) revealed that those responders who had more than four years of working experience in senior manager role had a lower level of teamwork behaviors than those having no experience ($p = .003$). Figure 31 illustrates the distribution of teamwork per years of being in a position of responsibility.

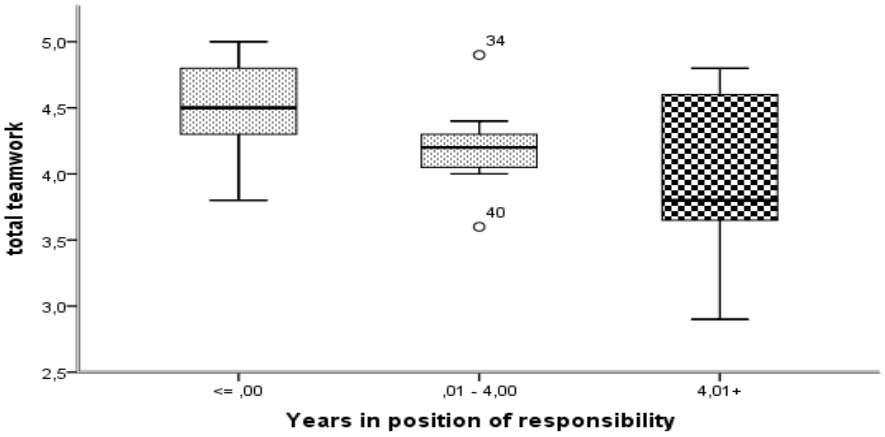


Figure 31. Median distribution of total teamwork after training per years in in senior manager role

Teamwork also found to be related with the annual salary of participants, $X^2 = 8.14$, $p = .017$. Pairwise comparisons using the Kruskal-Wallis test ($p = .05$) affirmed that those responders who earn an annual salary between 50.000€ and 100.000€ affiliated with lower level of teamwork behaviors than those who earn 0-30.000€ annually ($p = .015$). Figure 32 illustrates the distribution of teamwork per annual salary category.

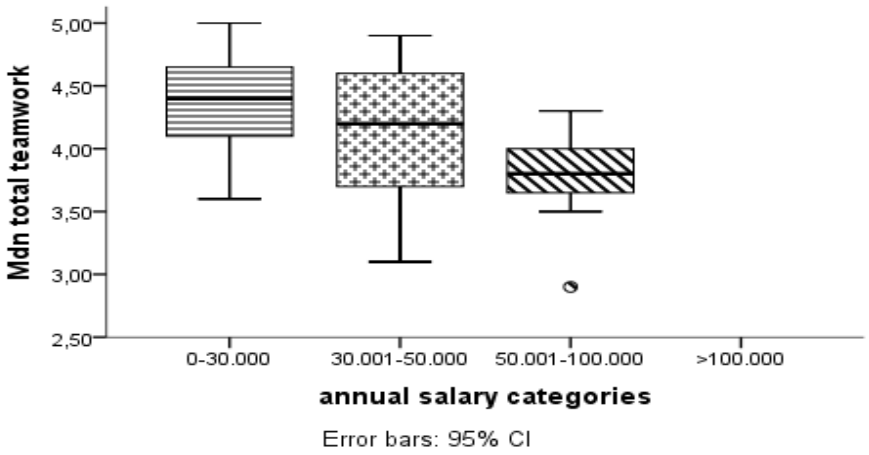


Figure 32. Median distribution of total teamwork after training per annual salary

Lastly, significant differences were found among professionals based on the number of different work environments that they had experienced at generating extra effort, X^2 = 9.79, p =.002. The Kruskal-Wallis test (p = .05) revealed that those responders who had changed more than three different working environments were affiliated with a higher level of extra effort behaviors than those who had experienced only 1-2 working environments (p =.001). Figure 33 illustrates the distribution of teamwork per number of workplaces.

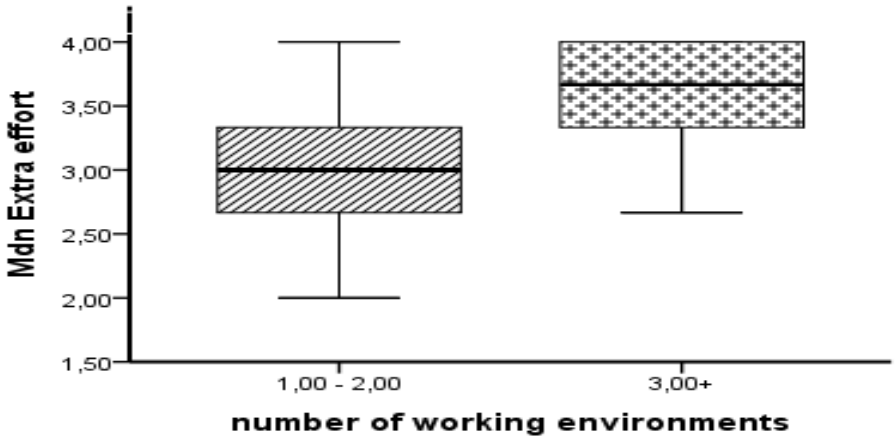


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Figure 33. Median distribution of extra effort after training per number of workplaces

CHAPTER V

DISCUSSION, IMPLICATIONS AND RECOMMENDATIONS FOR FURTHER STUDY

The research findings presented in the previous section are analyzed in more depth in this chapter. This analysis is aiming to interpret these findings in the context of higher education and business sector and to provide recommendations for applying new learning initiatives just as adventure-based training for professional development.

The purpose of this study was to examine the impact of two-day adventure training on skill based competencies of leadership and teamwork. The sample of this study consisted of 51 professionals, including bank executive directors, managers and administrators in private sector, and also 30 undergraduates in 3rd and 4th year of studying in the field of sport management. The study employed a mixed method of research approaches using both questionaires and observation. Teamwork and leadership competencies were measured following a retrospective pretest-posttest evaluation method. The study was guided by four research questions.

1. Are there any immediate effects on teamwork as a result of the training?
2. Are there any immediate effects on leadership competencies as a result of the training?
3. Are there any differences between the professional and the student group in post teamwork and leadership scores?
4. Are there any differences among participants of each group in post teamwork and leadership scores based on demographic variables?

The results suggest the effectiveness of adventure training program in developing teamwork skills in both samples of participants. Support for this contention can be found in the analysis of pre-post self-assessment scores on the TDI

scale. Estimating the magnitude of the effect, self-perceptions of overall teamwork changed moderately for the professionals and in a large level for the students. In the case of professionals, five items out of ten indicated a moderate effect. However, in the student sample all dimentions of teamwork showed a moderate effect with the highest being both the concern and interest in one another and listening and understanding.

Previous research (Priest, 1996; Broda, 2007; Gass & Priest, 2006; Goldenberg et al., 2000) which applied similar adventure training programs in professional sample refer to positive changes in teamwork such as increased communication skills, reward of team efforts and appreciation of feedback. Subsequently, there are certain relative positive changes in student populations such as becoming closer by knowing each other better; improving their communication skills (Birx et al., 2008; Fields, 2010; Human, 2006; Sooter et al., 2010), as also their decision making and problem solving skills (Martin, 2001; Sottile, Parker, & Watson, 2000; Wiltscheck, 2000).

In a closer examination of these results, the student group started with higher scores indicating the pre-existance of a better teamwork climate which was also verified through the observation results. It is common for each group member to keep some distance from each other at the beginning of the program as they have not fully understand what to expect. But over time, the team members within each group start to ask questions and try to find the best solution for the given challenge. Through this process, team members are motivated to provide and listen to new ideas, work together toward a common goal of coming up with the best solution in the given task. For some reason students compared to professionals at the beginning were more willing to act as a team by demonstrating more encouragement of feedback, looking

for help from each other and listening more carefully to others' ideas and solving suggestions. The reason for this diference in their pre-existing better climate is not clear but it may have something to do with the fact that to some extent students were found to overestimate some skills compared to observation scores. Such self-overestimation issues were both in the level of showing respect to individual differences (+0.53) and in encouraging and appreciating feedback (+0.87).

According to the second research question, the study found sufficient evidence to support immediate effects on leadership competencies as a result of the training. It was hypothesized that if the intervention was effective there would be a direct enhancement in self-perceived leadership. To assess the effectiveness of training pre-post self-assessment scores of the MLQ scales were compared. Estimating the magnitude of the effect, all three leadership styles transformational, transactional and passive/avoidant increased in post training indicating a moderate change in the case of professionals and a large change in both transformational and passive/avoidant, with a moderate change in transactional leadership in the case of students.

It is remarkable that participants in both samples seem to exhibit more transformational than transactional leadership behaviors. This becomes clear through observation where group members appeared to share a high level of trust and were highly motivated and encouraged to solve the challenges in an innovative and creative way. This is possibly observed because during the given challenges, participants had to discover the best solution, by being open to new ideas and approaches.

Another essential finding is that both groups realize that they had to decrease their passive /avoidant leadership behavior. Furthermore, the professional group focused on inspiring their followers tomake an extra effort and the student group focused on both generating extra effort and satisfaction to their followers. This result

may be explained by the fact that participants realize that behaviors such as avoiding to identify potential problem areas or not getting involved in the process of problem solving, but opposite they can lead to very ineffective team results. These cases of misleading behaviors were some examples of what went wrong in the debrief session, where all groups share the best and the most hard time they had as a team during their participation in the outdoor training.

As the process of learning is experiential all group members are needed to be involved in a great level with their bodies, minds and emotions in order to succeed. Under these circumstances groups encouraged to interact with each other and through the given challenges to identify their strong ang weak points of improvement. These results, therefore, point to the value of changing as participants critically self assess themselves and recognise what they need to improve, and make action plans on that. This approach of personal improvement is also recognized in a study of Beezley (2007) who adds that participants recognized their negative and positive behaviors and made plans on how they could improve them.

Previous studies (Bryan & Starr, 2005; Flurie, 2006; Hoepner, 2002; Hoover et al., 2010) in the field of applying outdoor training for professional development have shown similar positive impacts on leaderhip competencies such as challenging the process, modelling the way and acting with intergrity. In reviewing the literature, beneficial effects on leaders' change competency have also been found in university students. A recent study (Austin et al., 2009) reported greater level of trust in 1st year college students participating in 19 different outdoor training programs. Another study of Ewert and Overholt (2010) also mentioned benefits such as leading by example and greater level of participative decision making. Lastly, Hayashi (2006)

using the MLQ questionnaire for data collection reported an increase in transformational leadership in significant level.

The next research question was referring to the existence of any differences between the professional and the student group in post teamwork and leadership scores. According to the main findings of the study the only significant differences were found in teamwork competencies in which students appeared to perceive more frequently than professionals teamwork behaviors after training. However, the observed difference between professionals and students in relation to the immediate changes in display of even transformational or transactional leadership in this study was not significant. Moreover, students appeared keener on making an extra effort and decreased the passive leadership behaviors that they had used in the past. No explanation can be provided regarding the difference in teamwork, but a possible factor of influence might be that the student group started with higher scores indicating the pre-existing of a better teamwork climate both self-reported and confirmed through observation.

The last research question was exploring any differences among participants of each group in post teamwork and leadership scores based on demographic variables. The following conclusions can be drawn from the present study. Based on gender, it was found that female participants reported greater level of transformational leadership and appeared more willing to generate satisfaction to their followers than men. The study has brought some insightful understanding, that women bring different values into the workplace compared to male colleagues in the case of leadership behaviors. This finding corroborates the ideas of Bell (2006), who suggested that gender affects behaviors such as guidance and tangible support. A strong relathionship between gender and transformational leadership preferences has

been reported in the literature (Andersen & Hansson, 2011; Burke & Collins, 2001; Eagly et al., 2003). For example in the banking sector (Carless, 1998) it was found that female managers rated themselves higher in tranfrormational leaders than males.

Another significant finding to emerge from this study is that the age of participants seems to play a determinant role in leaderhip perceptions. Particularly, it was found that younger participants exhibit less frequently passive behaviors, are more willing to generate extra effort and display teamwork competencies on a more permanent basis. These results are consistent with those of other studies (Rasor, 1995; Vecchio & Boatwright, 2002) where it is suggested that older managers prefer less task oriented behaviors than younger who are focused on a behavioural approach on tasks that need to be performed in order to meet certain goals. This should be a possible explanation about why younger participants appear more inclined to try harder and make extra efforts in management positions.

Only in the case of the professional sample it was worthwhile to examine if work experience had any effect on perceived changes after training. Surprisingly, the results of this study indicate that those managers having more than 8 years of working experience, more than 4 years of working in a high responsibility position and earning high annual salary, affiliate lower levels of teamwork behaviors. It is reasonable that employees at different organizational levels might have some distinctly different expectations in regards to the leadership roles. For instance, in the case of Greek bank managers (Galanou, 2010) it was found that the factors of age and tenure influence the way of decision making with the senior managers disposing greater confidence because of their long years of work experience. This finding of the study can be interpreted as the more experienced and more confident for their actions managers are, the less they appeared to be teamplayers. This behavior has been supported by

Kabacoff and Stoffey (2001), and Kabacoff (2002) which states that younger in age managers feel more comfortable in fast changing work environments, more willing to take risks, and think over new approaches by displaying more enthusiasm and motivation.

The last significant finding appeared to be the effect of the number of different work environments on managerial behavior. It was found that those managers who have changed more than three different workplaces, affiliate higher level of extra effort behaviors. It can therefore be assumed that when an employee has been exposed to different workplaces and cultures, he/she can possibly develop a greater level of acceptance of diversity, and can also realize that for being effective he/she needs to generate extra effort to reach the organizational goals.

Implications

Summarizing the main impacts of this research, managers and undergraduate students gained improvements in competencies of teamwork, transformational and transactional leadership, as well as, in their extra effort behaviors. The behavior changes are considered to have a significant input on improvement of job by responding to the challenges faced by the business sector. As Criswell and Martin (2007) mentioned, a greater focus is given to the collaboration of organizational members rather that the individual. The value of the teamwork improvement which was observed in senior managers in this study, replies to the trend in the field of leadership, as also the changes that occurred within leadership behaviors and outcomes. Lastly, these behavior changes through the training program are considered to be crucial for the employee retention (Phillips & O. Connell, 2004). Any corporation and organization ought to have the development and retaining of their

employees as a main delegation, as human capital is the most important advantage against the competition or the market.

This study provides support that adventure training can contribute to the improvement of leadership and teamwork competencies. The evidence for this existing research study shows that effectiveness in the corporate world is still limited. Thus, with respect to leadership development, it is crucial for managers in all organizational levels, including future managers such as students with studies in the field of business, to be afforded appropriate training. Focus on training should be sustained to promote those leadership and teamwork behaviors that are associated with recognizing and showing respect to individual needs and aspirations. Diversity is another important factor for companies, because within a diverse environment employees can benefit and learn from others' ideas.

One of the issues that emerge from the outdoor training is that participants, try to identify the strong points of each team member of their group and to take advantage of the different ideas and innovative thinking through participative behaviors during their active involvement in a series of challenges. Through this developmental process, an individual adds value to the conflicts that arise by recognizing and facing opportunities for more effective decision making and problem solving. This approach has a number of advantages as it provides rich experiences for personal growth and development. Perceiving the advantages of training intervention, the participants become more involved and they add value to the process of learning by taking the opportunity to attain valuable insights into problematic areas of working behaviors that they face when back at the office.

Recommendations for further study

Several limitations of this particular study should be mentioned. First of all, by using self-evaluation questionnaires, we can not confirm whether the improvements identified in this study, are due to the intervention program or other common causes. Future research could enrich the originality of the perceptual changes by using methods such as conducting interviews and notes taking in debrief sessions, as well as more extended team observation.

Additional questions for future investigation that emerged from this study, concern the transferability of leadership and teamwork skills in the job setting. This particular area of investigation could be achieved by follow up measurements and 360 evaluation assignments from the colleagues of the participants. Consequently, this study was limited to the private sector, and for this reason the findings can not be generalized to the public sector. Furthermore, the use of convenience sampling demonstrates caution when discussing the generalizability of the results. Additionally, the results of this study are referring to a unique outdoor program which is more focused on low rope courses and can only be applicable to this training program or similar in the design programs.

Some additional limitations in methodology were that he participants of this study were chosen according to their availability to the researcher. Two organizations provided outdoor management development training and the researcher had access in conducting the research through completing a questionnaire and participant observation in the field. This type of convenience sampling technique can, however, present various problems in research as it makes no pretence at being representative of the population as a whole. Another limitation consideration is the absence of longitudinal perspective on the effects of outdoor training by conducting follow-up measurements. This occurred due to lack of the researchers accessibility to the professional sample, as the majority of

participants were bank employees who at that time were facing company problems of merging. However, the researcher missed the opportunity to repeat the measurement after the completion of the training.

The study has gone some way towards understanding the powerful value of adventure training in personal development, as a useful tool for diagnosis and yields reliable and distinguished measures of managerial competencies such as leadership and teamwork. While the initial findings about linking outdoor training experience with learning are promising, further empirical research is necessary to provide greater evidence of the impact of such interventions.

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***Reference marked with asterisks indicate studies included in the SR**

APPENDICES

APPENDIX A:

RESEARCH QUESTIONNAIRES
GREEK VERSION

Με τη συμπλήρωση του παρόντος ερωτηματολογίου λαμβάνετε μέρος στην ερευνητική μελέτη η οποία επικεντρώνεται στη διερεύνηση των ηγετικών συμπεριφορών καθώς επίσης και στην ανάπτυξη ομάδας. Η συμπλήρωση του ερωτηματολογίου είναι ανώνυμη και εθελοντική. Η ερευνητική αυτή μελέτη επιβλέπεται από το Τμήμα Οργάνωσης & Διαχείρισης Αθλητισμού του Πανεπιστημίου Πελοποννήσου στο πλαίσιο εκπόνησης Διδακτορικής Διατριβής.
Σας ευχαριστώ εκ των προτέρων!

Α ΕΡΩΤΗΜΑΤΟΛΟΓΙΟ ΗΓΕΣΙΑΣ

Χρησιμοποιείστε την παρακάτω κλίμακα, σημειώνοντας τον αριθμό 0-4 σε κάθε πεδίο. Παρακαλείστε να συμπληρώσετε σε κάθε πεδίο τον βαθμό που σας εκφράζει η κάθε μια από τις ακόλουθες διατυπώσεις. Απαιτείται η συμπλήρωση όλων των πεδίων.

Κλίμακα διαβάθμισης απαντήσεων

Καθόλου	Σπάνια	Μερικές φορές	Συχνά	Πάντοτε
0	1	2	3	4

Πόσο συχνά **εσείς ο ίδιος συμπεριφέρεστε** στα πλαίσια της εργασίας σας με τους τρόπους που περιγράφονται πιο κάτω (βάλτε **0 έως 4** στις επιλογές σας).		**πριν** την συμμετοχή σας	**μετά** την συμμετοχή σας
1	Προσφέρετε βοήθεια σε αντάλλαγμα για τις προσπάθειες των άλλων		
2	Επανεξετάζετε πράγματα που θεωρούνται δεδομένα για να δείτε αν όντως συνιστούν κατάλληλες λύσεις στις υπάρχουσες συνθήκες		
3	Δεν εμπλέκεστε έως ότου τα προβλήματα γίνουν σοβαρά		
4	Δίνετε προσοχή σε παρατυπίες, λάθη, εξαιρέσεις και αποκλίσεις από τα πρότυπα		
5	Αποφεύγετε να εμπλέκεστε όταν παρουσιάζονται σημαντικά θέματα		
6	Μιλάτε για τις πιο σημαντικές αξίες και πιστεύω σας		
7	Είστε απών/απούσα όταν σας χρειάζονται		
8	Προσπαθείτε να δείτε τα πράγματα από πολλές διαφορετικές οπτικές όταν λύνετε προβλήματα		
9	Μιλάτε με αισιοδοξία για το μέλλον		
10	Κάνετε τους γύρω σας να νιώθουν περήφανοι που σχετίζονται μαζί σας		
11	Μιλάτε ξεκάθαρα για το ποιός είναι υπεύθυνος και τους στόχους απόδοσης που πρέπει να επιτύχει		
12	Περιμένετε να επιδεινωθεί μια κατάσταση προτού αναλάβετε δράση		
13	Μιλάτε με ενθουσιασμό για το τι πρέπει να επιτευχθεί		
14	Κάνετε ξεκάθαρο πόσο σημαντικό είναι να υπάρχει μια έντονη αίσθηση κοινού σκοπού		
15	Αφιερώνετε χρόνο στο να εκπαιδεύετε τους άλλους και να τους καθοδηγείτε		
16	Διατυπώνετε ξεκάθαρα την ανταμοιβή της επίτευξης στόχων		
17	Δείχνετε ότι πιστεύετε στην αντίληψη ότι «αν κάτι δε σπάσει, δεν υπάρχει λόγος να προνοήσεις να το φτιάξεις»		
18	Υπερβαίνετε το ατομικό σας συμφέρον για το καλό της ομάδας		
19	Συμπεριφέρεστε στους συναδέλφους σας ως ξεχωριστά άτομα κι όχι απλά ως μέλη μιας ομάδας		
20	Δείχνετε ότι τα προβλήματα πρέπει πρώτα να χρονίσουν πριν αναλάβετε δράση		
21	Ενεργείτε με τέτοιους τρόπους που ενισχύουν το σεβασμό των άλλων		

Πόσο συχνά **εσείς ο ίδιος συμπεριφέρεστε** στα πλαίσια της εργασίας σας με τους τρόπους που περιγράφονται πιο κάτω (βάλτε **0 έως 4** στις επιλογές σας).		**πριν** την συμμετοχή σας	**μετά** την συμμετοχή σας
22	Συγκεντρώνετε όλη σας την προσοχή στο να ασχολείστε με λάθη, παράπονα και αποτυχίες		
23	Λαμβάνετε υπόψη σας τις ηθικές συνέπειες των πράξεων σας		
24	Καταγράφετε και παρακολουθείτε συστηματικά όλα τα λάθη		
25	Αποπνέετε ένα αίσθημα ισχύος και εμπιστοσύνης		
26	Διατυπώνετε ένα ελκυστικό όραμα για το μέλλον		
27	Επισημαίνετε τις αποτυχίες τους στην επίτευξη των πρότυπων		
28	Αποφεύγετε να λαμβάνετε αποφάσεις		
29	Θεωρείτε ότι ο καθένας έχει διαφορετικές ανάγκες, ικανότητες και όραμα		
30	Παροτρύνετε τους γύρω σας να βλέπουν τα πράγματα από πολλές διαφορετικές οπτικές		
31	Βοηθάτε τους συναδέλφους σας να αναπτύσσουν τα δυνατά τους σημεία		
32	Προτείνετε στους άλλους νέους τρόπους ολοκλήρωσης των εργασιών που τους έχουν ανατεθεί		
33	Καθυστερείτε να απαντήσετε σε επείγοντα ερωτήματα		
34	Αναγνωρίζετε τη σπουδαιότητα της ύπαρξης μιας συλλογικής αίσθησης της αποστολής του οργανισμού		
35	Εκφράζετε την ικανοποίησή σας όταν οι άλλοι επιτυγχάνουν τους στόχους		
36	Εκφράζετε την πεποίθηση σας ότι οι στόχοι θα επιτευχθούν		
37	Ανταποκρίνεστε αποτελεσματικά στις ανάγκες που σχετίζονται με την εργασία σας		
38	Χρησιμοποιείτε μεθόδους ηγεσίας που είναι ικανοποιητικές		
39	Παρακινείτε τους άλλους να προσπαθήσουν περισσότερο από ότι απαιτείται		
40	Είστε αποτελεσματικός στην εκπροσώπηση των άλλων στα ανώτερα επίπεδα της ιεραρχίας		
41	Συνεργάζεστε μαζί με τους συναδέλφους σας με αποτελεσματικό τρόπο		
42	Αυξάνετε την επιθυμία των συναδέλφων σας για επιτυχία		
43	Ανταποκρίνεστε αποτελεσματικά στις απαιτήσεις του οργανισμού		
44	Ενισχύετε την προθυμία τους να προσπαθήσουν περισσότερο		
45	Διοικείτε μια αποτελεσματική ομάδα		

Β ΕΡΩΤΗΜΑΤΟΛΟΓΙΟ ΟΜΑΔΙΚΗΣ ΕΡΓΑΣΙΑΣ

Χρησιμοποιείστε την παρακάτω κλίμακα, σημειώνοντας τον αριθμό 1-5 σε κάθε πεδίο. Παρακαλείστε να συμπληρώσετε σε κάθε πεδίο τον βαθμό που σας εκφράζει η κάθε μια από τις ακόλουθες διατυπώσεις. Απαιτείται η συμπλήρωση όλων των πεδίων.

Κλίμακα διαβάθμισης απαντήσεων

Ανεπαρκής	Επαρκής	Ούτε Καλή/ούτε κακή	καλή	Εξαιρετική
1	2	3	4	5

Στα πλαίσια της ομαδικής εργασίας υπάρχει:		Εκτίμηση σας πριν την συμμετοχή	Διαπίστωσή σας μετά την συμμετοχή
1	**Κατανόηση και δέσμευση στους στόχους**		
2	**Κατανόηση και ενδιαφέρον ο ένας για τον άλλον**		
3	**Επίγνωση και αντιμετώπιση των τυχόν εμποδίων**		
4	**Προσεκτική ακρόαση και κατανόηση του τι λέει κάποιος**		
5	**Άμεση λήψη απόφασης και έναρξη εύρεσης επίλυσης**		
6	**Αναγνώριση και σεβασμός της ατομικής διαφορετικότητας**		
7	**Οριοθέτηση υψηλών στάνταρτ απόδοσης**		
8	**Αναζήτηση βοήθειας στα μέλη της ομάδας για την επίλυση των τυχόν προκλήσεων**		
9	**Επιβράβευση της ομαδικής προσπάθειας**		
10	**Ενθάρρυνση για ανατροφοδότηση**		

Δημογραφικά Στοιχεία

1. Φύλο	Άνδρας____	Γυναίκα_____		
2. Ηλικία	Μέρα_____	Μήνας_____	Έτος_____	Π.χ. 23/08/1978
3. Επίπεδο εκπαίδευσης	Δημοτικό_____	Γυμνάσιο_____	Λύκειο_____	Μεταλυκειακές σπουδές (ΙΕΚ)_____
	Πανεπιστήμιο: ΑΕΙ_____ ΤΕΙ_____	Μεταπτυχιακό____	Διδακτορικό_____	
4. Επάγγελμα:	_____			
5. Θέση εργασίας	_____ Αναφέρατε τίτλο		**6. Πόσα χρόνια είστε σε αυτή τη θέση_____**	
7. Ετήσιο εισόδημα	0-30.000€____	30.001-50.000€_____	50.001-100.000€____	>100.000€___
8. Πόσα χρόνια συνολικής επαγγελματικής εμπειρίας **(μετά την κτήση πτυχίου)**			N=_____	
9. Έχετε πρότερη εμπειρία συμμετοχής σε βιωματική εκπαίδευση στην ύπαιθρο			Ναι_____ Όχι_____	Αν ναι Πόσες φορές_____

Αν επιθυμείτε να λάβετε τα αποτελέσματα της συγκεκριμένης έρευνας είτε να λάβετε μέρος σε μελλοντική συνέντευξη, παρακαλώ σημειώστε **τηλέφωνο** και ένα **email επικοινωνίας** σας.

Άννα Κουρτεσοπούλου, Υποψ. Διδάκτορας
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APPENDIX B:

RESEARCH QUESTIONNAIRES
ENGLISH VERSION

A LEADERSHIP QUESTIONNAIRE

Range of frequency

Not at all	Once in awhile	sometimes	Fairly often	Frequently, if not always
0	1	2	3	4

How often you behave in your work environment with the following leadership styles as they analysed above (for each of the items listed above mark number **0 until 4**)		Before your participation	After your participation
1	Provides me with assistance in exchange for my efforts		
2	Re-examines critical assumptions to question whether they are appropriate		
3	Fails to interfere until problems become serious		
4	Focuses attention or irregularities, mistakes, exceptions & deviations from standards		
5	Avoids getting involved when important issues arise		
6	Talks about their most important values and beliefs		
7	Is absent when needed		
8	Seeks differing perspectives when solving problems		
9	Talks optimistically about the future		
10	Instills pride in me for being associated with him/her		
11	Discusses in specific terms who is responsible for achieving performance targets		
12	Waits for things to grow before taking action		
13	Talks enthusiastically about what needs to be accomplished		
14	Specifies the importance of having a strong sense of purpose		
15	Spends time teaching and coaching		
16	Makes clear what one can expect to receive when performance goals are achieved		
17	Shows that he/she is a firm believer in ‘if it isn’t broke, don’t fix it’		
18	Goes beyond self-interest for the good of the group		
19	Treats me as an individual rather than just as a member of a group		
20	Demonstrates that problems must become chronic before taking action		
21	Acts in ways that builds my respect		
22	Concentrates his/her full attention on dealing with mistakes, complaints and failures		
23	Considers the moral and ethical consequences of decisions		
24	Keeps track of all mistakes		
25	Displays a sense of power and confidence		
26	Articulates a compelling vision of the future		
27	Directs my attention toward failures to meet standards		
28	Avoids making decisions		
29	Considers me as having different needs, abilities and inspirations from others		
30	Gets me to look at problems from many different angles		
31	Helps me to develop my strengths		
32	Suggests new ways of looking at how to complete assignments		
33	Delays responding to urgent questions		
34	Emphasizes the importance of having a collective sense of mission		

How often you behave in your work environment with the following leadership styles as they analysed above (for each of the items listed above mark number **0 until 4**)		**Before your participation**	**After your participation**
35	Express satisfaction when I meet expectations		
36	Expresses confidence that goals will be achieved		
37	Is effective in meeting my job-related needs		
38	Uses methods of leadership that are satisfying		
39	Gets me to do more than I expected to do		
40	Is effective in representing me to higher authority		
41	Works with me in a satisfactory way		
42	Heightens my desire to succeed		
43	Is effective in meeting organizational requirements		
44	Increases my willingness to try harder		
45	Leads a group that is effective		

B TEAMWORK QUESTIONNAIRE

Range of frequency

Poor	Adequate	Good	Great	Exceptional
1	2	3	4	5

Στα πλαίσια της ομαδικής εργασίας υπάρχει:		**Estimation Before your participation**	**Estimation After your participation**
1	Understanding and commitment to goals		
2	Concern and interest in one another		
3	Acknowledgement and confrontation of conflict		
4	Listening with sensitivity and understanding		
5	Prompt decision making and solution initiation		
6	Recognize and respect individual differences		
7	High standards for own and team's performance		
8	Look to each other for help on resolving challenges		
9	Recognition and reward of team efforts		
10	Encourage and appreciate feedback		

Demographic Data

1. Gender	Male____	Female_____		
2. Age	Day_____	Month_____	Year_____	E.G. 23/08/1978
	Bachelor: AEI_____ TEI_____	Master____	PhD_____	
4. Occupation:	_____			
5. Job position	_____ Title of profession		**6. Years of working** _____	
7. Annual income	0-30.000€____	30.001- 50.000€_____	50.001- 100.000€____	>100.000€___
8. Total years of working experience (after graduation)			N=_____	
9. Have you participate again in an outdoor training			Yes_____ No_____	If yes how many times_____

APPENDIX C:

OUTDOOR CHALLENGES MATERIAL

1st day

During the first day, the three icebreakers activities that participants played were: (1) the name game; (2) everybody up; and (3) human knot. Typically, each of those activities took 15–20 minutes to be completed.

The name game

In this activity the objective is for the group to gradually learn the names of all members. This is achieved by first throwing a soft object (balls or toys) around the circle, with each person saying their name when they catch the object. After a few minutes of this, as well as saying their own names, participants then also say the name of the person they choose to throw to. The game can be made more difficult by throwing in more objects. The group repeats the same order of passing the object around the circle so they also have to remember the order of throwing. Again, there are time penalties when the object touches the ground. As they repeat the procedure tha instructor asks from the participants to try to challenge the time by completing the whole circle as fast as they can. They try harder and harder by concentrating more and there is a hint solution in a group uses its imagination correctly. They can set a line in the circle in the same order that they throw the object. This strategy helps to eliminate the time needed to conclude the activity.

Everybody up

Ask the group to form dyads of approximately the same body size to sit on the ground facing one another so that the bottoms of the feet are opposite, knees bent, and hands tightly grasped. From this sitting position, ask the duo to try and pull themselves into an upright standing position. Another variation is to have partners sit

back to back without allowing interlocking arms in this position, adding one more person to the group to make an odd number, or even combine two dyads together, or more making one large group demonstrate the movement.

Human knot

Get the group in a tight circle. Have the members of the group reach out with their tight hands and grasp one of the right hands available. Repeat with left hands. Then ask them to unravel the knot. People may not let go. The circle of hands is to remain unbroken. However, it may be necessary to change grips due to the angle of arms and bodies. One variation is for the group to stay silent during the entire activity.

The next session includes more demanding activities, all increasing in difficulty, with an average duration of 30-45 minutes each. In this session, each group participates in a total of five challenges, which are the following: (1) nitro crossing; (2) spider's web, (3) the perfect square; (4) outside of the circle; and (5) toxic waste

Nitro crossing

For this game the equipment is a swing rope that is suspended from a cable. Also a can filled almost to the top with water. Set up procedure: attach the swing rope to the suspended cable with a carabiner. Let it hang in the middle of the 'river'. Fill the can 7/8 of the way with water, 'nitro' and place it in the center of the river, near the swing rope. Place the 'all aboard' platform in the landing area for the case that needed a bigger area. The objective of this activity is for the group to obtain the rope and to move from one side of the river to the landing area on the other side without touching the ground in between. Consequences are imposed for spilled 'nitro'and if

someone touches the ground, the entire group has to return to the starting point and the rope returned to the center of the river.

Spider's web

For this game the equipment is a bungee cord web stretched between a wooden frame with numerous openings of various sizes. The objective is for each group member to pass through a different opening in the web without touching the web. Once a hole has successfully been used it is closed to the rest of the group until all the holes have been used. If a person touches the web, the person touching the web and one person prior should return to the starting point.

The perfect square

A rope is placed near the blindfolded participants. The team must first find the rope, then unravel it completely and make a perfect square on the ground, all within the allotted time. This activity focuses on communication, problem solving, leadership and team effectiveness.

Outside of the circle

The group begins by forming a circle and each member puts one personal object in laying down distance from the circle. After leaving the object on the ground all members return inside the circle. The objective of this activity is for each member of the group to manage to catch the personal object and bring it back to the circle without touching the ground and withoud stepping out of the circle made with a rope.

Toxic waste

For setting up the activity a bicycle inner tube cut in half is needed, four sections of rope 20´ long and one section of rope 40´ long. Outline a 30´ diameter circular area using a section of work rope and in the center of that circle, place a can filled with 1/3 of water. Some of the rules of this initiative are: any and as many knots as desired can be tied in the ropes or rubber sections, the ropes cannot be cut, no one may enter or make contact within the outlined circular rope area and there are some time penalties in case of spilled water. The objective of the activity is to retrieve a desirable substance from within a circular, toxic non-touch zone, using only those props made available.

2nd day

The second day of training includes a scenario of monopolis game. Each group has to choose only four out of the five given outdoor challenges to participate. Their aim is to gather the maximum possible points adding the points gained from each activity. The challenge options are the following: the islands, lean on me, space escape, human ladder and stepping stones. The total duration of this game is four hours.

The islands

For this game the equipment is two 6-foot square platforms and two 2-foot square platforms. One 6 foot 2x6 plank and one 2 foot 2x6 plank. Each platform has about 6´4´´ of space between it and the next platform. The objective of this activity is for the entire group to move from the first large platform (island) across the two smaller platforms to the last large platform. Ground touches usually invoke negative consequences such time penalties.

Lean on me

The group works in pairs to accomplish exercises which involve physical support and trust to. Each dyad stands back to back with the elbows interlocked. When they are all in position they decide which of the pairs will go first. One dyad demonstrates the task and the others do the same until all pairs demonstrate one different task. It is a good activity to use early in the program to engage a group in discussions of trust and risk taking.

Space escape

A group of astronauts hide under a rocky outcrop during an unexpected electrical storm and they have to escape using the only pass through the elastics (hula-hoops) which represents their oxygen support system. The equipment needed for this activity is two 3-4 m lengths of rope laid out 4-5 m apart and parallel to each other. These represent the distance from the outcrop to the spaceship. Six hula-hoop spaced 30-44 cm from each other. First, the group forms a line on the start side of the rope. Then all participants are provided with one elastic hoop and use it to link themselves together at the ankles by the elastics. They are all connected and only the first and the last person of the line have a free leg. Once they are properly linked, the objective is to move all the way to the opposite side, to the 'spaceship', without stepping out of the hula-hoops as it is radioactive and they must return to the start point. This activity is proper for a group to start working closely as a team and realize what it takes and how it feels to be connected in such a way that your actions affect how others perform.

Human ladder

The materials needed for this activity are 6-10 smoothed hardwood dowel rods about 3 ft. long and one and a quarter inches in diameter. Participants are paired and given one rung of the ladder. Several pairs holding a rung and standing close together form the ladder. A climber starts at one end of the ladder and proceeds to move from one rung to another. Some of the variations of this particular activity are: As the climber passes by, the pair holding that ladder rung may leave their position and proceed to the end of the ladder extending it indefinitely. The direction the ladder changes and he may vary the height of the rungs of the ladder and/or add obstacles.

Stepping stones

For this activity the equipment that is needed is one prop per person and two ropes or other suitable methods for identifying the point A (starting) and the point B (ending). The aim of the activity is for the whole group to move from one point to the other by using only the stepping stones (props) without touching the ground. The number of props given are one less than the number of the participants.

APPENDIX D:

APPRAISAL OF METHODOLOGICAL CRITERIA FOR INCLUDED STUDIES' CHARACTERISTICS

-D1: Professional sample (n=29 studies)
- D2: Student sample (n=29 studies)

Appendix D1. Appraisal of methodological creteria for included studie's characteristics-
Professional sample (n=29 studies)

Source	Design/ Sector	Aim/ hypothesis	Sample	LD Program/ Intervention	Instrumentation	Results
Broda (2007) U.S.A.	Qualitative (Phenomenological research) Education (Middle &) Elementary school	To explore perceived personal & professional impacts	N=7 Male=1 Female=6 M_{age}=47	**Content**: - Teacher leadership expedition: Include outdoor activities & articles – cases read materials **Duration**: 3-days **Delivered by**: Middle & Elementary school teachers	- Participant protocol writing - Semi-structured interviews - Experience observation - Participant journal	- Expressed feelings of renewal (D7) - victory over their presuppositions & fears (D7) - self awareness (D1) - empowered of taking situations control (B4) - make changes in their personal & professional lives (D3) - developing relationships (A4) - improvement of time management (C5) - using common language (A1) - become aware of the new learning for successfulness - encourage risk taking (B2) - work more effectively as a team (B7)
Bryan & Starr (2005) U.S.A.	Qualitative (heuristic investigation) Mixed sector	To examine the deeper meaning of the phenomenon of being a leader on a Rope Course (RC) & at work	N=13 From the pool of 130 from RC programs Male=7 Female=6 Age= 30-40 Years Old (y.o)	**Content**: Low RC: - hula-hoop pass - ball jungle - river crossing - calculator - mission possible **Duration**: 1 & half -day **Delivered by**: Managers, directors & administrators	- self-writing stories of personal experiences of being a leader during the RC & at work (keeping journal) - audio taped dialogue sessions - observations - document analysis 3 weeks later discussion sessions & journal bringing	- challenged the process by inviting the group members to try more (B2) - clarified vision, goals & directions (B6) - encouraged an environment where ideas could be heard (B7) -modeling the way by influencing others(B5) - encouraged teammates (B4) - recognition of group members talents(B1) - asked or given feedback (B3) - acting with integrity (C3) - take responsibility for their actions (C5)

Burke & Collins (2004) U.K.	Qualitative research Business (publishing, insurance & education)	Solicit client's perceptions of provision for conflict handling in OMD & investigate the relationship between OMD methodology & skills transfer	N= 39 Male=22 Age= n/a Work Experience(WE): n=20 (1-5 years) n=32 middle & senior level management	**Content**: Outdoor Management Development (OMD) **Duration**: n/a **Delivered by**: Managers	- Questionnaire with: Likert scale & open-ended questions - Observation	<u>What they transfer:</u> - knowledge of broad principles underlying skills application (C1) - Specific knowledge pertaining to particular skills or abilities (C2) - Self-knowledge (D1) - Process & implement decisions in groups (C7) - Dealing with personality differences (D9) - Different styles of conflict handling (D2) - Listening & negotiating skills (A1) - Dealing with unequal power relationships (A4) - Resolving conflict as a third party (B3) - Assertiveness (B4) - Use of body language (A1) - Being open to others' views (D6) - Anticipating potential conflict (D8) - Modifying initial reactions (D2) - Use a step-by-step approach (C7) - Changing responses to conflict (D2)
Dougherty (2006) U.S.A.	Quantitative & Qualitative (quasi-experimental design) Sports-Recreation	Examine changes in life effectiveness after participating in a program Becoming an Outdoor Woman (BOW)	N=85 n_1= 20 (Experimental Group (EG) n_2= 65 (Control Group(CG) M_{age}=41-50 y.o Educational level= 47% high school	**Content**: - initiative exercises, low RC (spider's web) & high RC **Duration**: 3-days **Delivered by**: Women	- The Life Effectiveness Questionnaire (LEQ) (Neill, Marsh & Richards, 2003) - Observation (LEQ-Observer Sheet) - One-on-one interviews Pre-post & 1 month follow-up	- EG ↑score in 6 of the 8 factors: time management (C5), achievement motivation (B4), task leadership (C3), emotional control (D1), self-confidence (D1), & social competence (A2) - Obtained similar significance between the pre-test, post-test & 1 follow-up - CG had increased scores but not after 1 month - emotional control & self confidence were the most frequent responses - ↑ ranking by observing: time management, achievement motivation & intellectual flexibility

Flurie (2006) U.S.A.	Qualitative (phenomenolo-gical case study) Education (university)	To explore: the impact of participation on self-efficacy as leaders; their emotions thoughts & feelings experiencing; & their long &term of emotional impact	N=23 Male=13 Female=10 Age: mid20s-mid50s WE: 6= Elementary school principals 4=directors of special education 13= other educational expertise	**Content**: Group initiatives in orienteering, experiential-based problem solving, group discussions, low & high RC **Duration**: 4-days **Delivered by**: Educators in leading positions	- post-activity surveys - post-activity audio taped interviews - participant journals - video journals - researcher observations	- growth through changes in their view or definition of leadership: - leader are not to do everything but must steer or lead others (B5) - leaders do not always have to lead from the front (D5) - the individual moves from & task leadership to a transcendental leader (spirituality concern) (D9) • increased self-efficacy (D7): - they face & overcome tremendous emotional & physical challenges - no longer were afraid to fail or try something new due to failure fear • ↑level of accomplishment (D3) • better group cohesion (B7)
Fuller (2006) U.S.A.	Qualitative (Phenomenolo-gical research) Business	To explore the continued reflection & enhanced description of the participants' awareness of Task Leadership (TL) skills	N=23 n=20 corporate executives n= 3 facilitators	**Content**: outdoor leadership training program (fly-fishing) **Duration**: n/a **Delivered by**: Executive managers	• semi-structured open-ended interview questions • facilitator observation • testimonial letters were researcher reviewed	- how the participants applied program learning to work life: - comfort & safety creates trust (A4) - openness, candidness & compassion (A2) - nonlinear thinking (B2) - program effectiveness comes from synergy (B7) - TL skills exhibited: visioning (B6) inspiring/motivating/stimulating (B4), rethinking of ideas (C7), coaching/ mentoring (B3), listening (A1) & encouraging creative problem solving(B2)

Gass & Priest (2006) U.S.A.	Quantitative & Qualitative (Experimental Research (ER) Business (Banking)	To examine the outcomes of using metaphors to enhance learning in the framing & debriefing of teamwork issues for a (CAT) program	N= 115 n_1=92 (EG) n_2=23 (CG) 23 members each group: - 4% vice-president - 13% divisional directors - 83% departmental managers Age: over 30s Majority male WE: at least 3 years	**Content:** CAT program of teambuilding - goal setting & socialization exercises - group initiatives focused on teambuilding - practice teamwork (Problem Solving & Decision Making tasks) - action planning for the future **Duration**:4-days **Delivered by:** Employees of Deutsche & European regional Bang	- Team Development Indicator (TDI-m) (Bronson, 1991) (50- items, α= .95) 6 factors- sub-scales: 1. Trust 2. Communication 3. Collaboration 4. Problem-solving 5. Decision Making 6. Task completion - pre-test (1 month) - post-test (1 month-6 months-12 months) - 3 weeks later groups meet to discuss the progress of their actions plans	• All 4 (EG) groups showed significant increases in teamwork (B7) • Mixed isomorphic & metamorphic debrief group possessed the greatest initial increase • Group with no metaphoric debrief or framing experienced the least initial increase • Mix of (isomorphic frame & metaphoric debrief) was significantly more effective than either approach alone • Teamwork levels of the mixed group remained longer
Goldenber, Klenosky, O'Leary & Templin (2000) U.S.A.	Quantitative & Qualitative (ER) Education (university)	To develop a better understanding of the benefits range that resulted from participation in a RC program	N= 125 Male=62 Age= 18-50 (65%= 18-24 y.o) 67.2% no previous outdoor experience 98= Students (78.4%) 27 =University staff & supervisory-level positions from 2 universities	**Content**: 2 RCs: 1st) name games & energizers-trust/spotting activities-3 low initiatives 2nd) 3 high elements: cat walk-pamper pole-climbing wall **Duration**: 3-4 hours **Delivered by**: Students & university staff	Self-administered questionnaire: (Walker, 1988) - list up to 8 outcomes - complete ladders for their top 3 outcomes	• 96% very satisfied /satisfied • 76% listed 3-5 outcomes: - Teamwork (16.6%) - Developing trust (10.2%) - Communication (9.4%) - Awareness (6.1%) - Leadership (5.9%) • 17.2% 3 ladders <u>The most representing ladders</u>: - teamwork (n=76) B7 - task accomplished (60) C5 - communication (51) A1

Hamilton & Cooper (2001) U.K.	Quantitative Research Business sector	To investigate the impact of OMD program for teambuilding skills	N=38 n=26 (EG) male=15 M_{age} =29 M_{WE}= 2.6 years n =12 (CG)	**Content**: teambuilding program of low ropes **Duration**: 2.5-days **Delivered by**: 1st line recruitment managers	- Team climate inventory (TCI, 44-items, 5 sub-factors) (West & Anderson, 1999) - Occupational motivation questionnaire (OMQ, 7-scales) (McDonald et al. 1999) -Pressure management indicator (PMI, 120-items) (Williams & Cooper, 1998) Pre-post test (1 week)	• ↑ participative safety (B2) • ↑ sharedness (B7) • ↑ reward, achievement/ development & stimulation scale • Participants were over-pressured & low mental wellbeing
Hoepner (2002) U.S.A.	Quantitative Education (technical college)	To explore the premise that RC training is beneficial to employees & the skills learned through training are transferred back to the workplace	N=10 consist a department work team from a technical college) WE: >20 years (n=3) >10 years (n=2) 5 years (n=5) <1 year (n=1)	**Content**: RC **Duration**: 1 day **Delivered by**: college professional staff	The team effectiveness critique, inventory (Alexander, 1985) 9 questions, 7-point Likert scale: - goals & objectives -utilization of resources - trust & conflict - leadership - control & procedures - interpersonal communication - problem solving (PS)/ decision making (DS) -creativity -evaluation pre-post & follow up (after 1 month)	<u>The greatest improved & stayed improved after 1 month</u> : - utilization of resources (+17) C6 - shared leadership (+14) B4 - experimentation/creativity (+14) B2 - evaluation (+14) D3 <u>The most effected after 1 month period:</u> - utilization of resources (+14) - experimentation/creativity(+13) - evaluation (+14) - PS/ DM(+12) C7

Hoover, Giambatista, Sorenson & Bommer (2010) U.S.A.	Qualitative (quasi-experiment) Education (MBA)	To examine if an executive skills course effects student skill levels	N=483 n1=420 (EG) n2=63 (CG) Pre-post test	**Content**: A course focusing on the acquisition of executive skills: - experimental activities: (blindfolded trust walk; Paintball team & Starfish) - role playing - case studies - team presentations **Duration**: 9 weeks **Delivered by**: MBA students	- Completing behavioural activities in assessment center (145 minutes) (1) in-basket (2) a team meeting for an executive hiring decision (3) a team meeting to discuss customer service initiatives (4) an individual speech -Videotaped meetings - Observation	• EG showed significant Improvements in: - overall (20.2, p <.001) - Leadership (12.7, p <.001) B4 - Decision making (14.6, p <.001)C7 - planning & organizing (20.1, p <.001) C1 - communication (23.3, p <.001) A1
Hornyak & Page (2004) U.S.A.	Qualitative (ER) Education (university)	To introduce participants to each other & to build a team through a leadership development program	N= 12 (4 academics, 1 technician, 1 historian, 1 library technician, & administrative specialists) Age=20-60 years old	**Content**: Leadership Enhancement & Development Program (LEAD) - team building event - low RC (hula-hoop, spaceship, spider web, balance board) - indoor course (role-playing, simulations, group projects) **Duration**: 1 day **Delivered by**: University Faculty & staff members	- Notes taken by participants on experiences -Participation process in community project - E.g. of university projects LEAD group involvement: - organizing festival - developing an executive information system instituting a university –wide alternative dispute resolution problem-solving program	- <u>important lessons about</u> : communication, listening (A1) leadership (B4), cooperation & persistence needed in working together to accomplish a goal (B7) - putting the ideas from all the participants into action, & seeing the very positive result (B2,C6) - <u>Metaphorical value of the balance board activity</u>: Important factors of success are: - Caution (D8) - courage (B4) - clear thinking (C7) - a consultation (B3) - cooperation (B7)

Jones & Oswick (2007) UK	Qualitative (Case study) Business (photoproducts manufacture)	To investigate the impact of participation in an archetypal example of OMD on leadership confidence, competence & performance of a cohort of junior managers	N=19 Male=19 Age= 30-50 y.o WE: 5-30 years Intact group studying for a an in-company Post-Graduate Certificate in Team Leadership (PGCTL)	**Content**: i) Micro-dynamics activities ii) Raft project iii)Wilderness expedition iv)Review & personal Challenge **Duration**: 7-days **Delivered by**: 3 teams of participants 1 instructor per team	- participant & non-participant observation - open-ended questionnaires - focus group discussions - journal entries - field notes taken of briefings, exercises & debriefings - interviews (3 weeks after)	- positive intra-personal outcomes (↑self-confidence, self-awareness & self-knowledge) D1, D7 - positive inter-personal outcomes : ↑leadership, team membership B7 communication, negotiation (A1) ↑trust, motivating others (B5) ↑planning, time management (C5) ↑ management of resources (C6) • <u>Work behavior</u> - Relevant & transferable to work attributed to micro-dynamics (21%) > macro-dynamics (5%) - 42% changes as delegating to & trusting subordinates
Jones, Oswick & Lockwood (2007) UK	Qualitative (Case study) Business (photoproducts manufacture)	To investigate the participation impact in an archetypal example of OMD on the productivity of first line managers	N= 384 First line managers Age: 30-50 y.o WE: 5-30	**Content**: i) Micro-dynamics activities ii) Raft project iii) Wilderness expedition iv) Review & personal Challenge **Duration**: 7-days **Delivered by**: 24 teams of participants 1 instructor per team	- participant observation - open-ended questionnaires -focus group discussion - critical incident journal - interviews	- ↑leadership & team working (B7) - ↑self-knowledge, self-confidence & self-efficacy (D1, D7) - (47%) of individuals were able to provide examples of <u>positive changes in their work behaviors such as:</u> Improved planning, (C5) ↑reviewing & goal setting (C3) ↑ sensitivity towards the views & contributions of colleagues (D9) ↑ability to 'read' their team (D8)

Judge (2005) U.S.A.	Quantitative & Qualitative (ER) Education (university)	To examine the personal growth experience through outdoor leadership course (OLC) that tests & enhances the executives' leadership competencies	N=73 3 different OLC: n_1= 22 M_{age}: 39.9 yo WE= 17.2 years Male=22 n_2= 22 M_{age}= 38.4 WE= 15.7 yeas Male=16 n_3= 29 M_{age}=40.3 y.o WE= 17.6 years Male=27	**Content**: 3 OLC: 1. mountain trek 2. challenge course in mountains (climbing & rappelling, building a bridge orienteering trip) 3. challenge course at a resort (rock climbing & rappelling, pond object retrievals, caving expedition) **Duration**: 1 day **Delivered by:** EMBA students & consultants	- Students evaluations of Leadership practices inventory (LPI) (Useem, 2001; Kouzes & Posner, 1995) - Notes taken - Feedback from students - 3 months after complete a 2nd LPI (evaluate the impact) - their managers' assessment 12 months earlier	• Strongest at 'Modeling the way' (B4) & weakest in 'Inspiring a shared vision' • Improved 4 of 5 leadership practices: - challenge the process (*t*=3.07) B2 - inspiring a shared vision (*t*=3.70) B6 - enable others to act (*t*=2.49) B5 - encourage the heart (*t*=2.10) B1
Kass & Grandzol (2010) U.S.A.	Quantitative & Qualitative (quasi-experimental) Education (university)	To analyze the impact of an Leadership on the Edge (LOTE) program on the leadership development of MBA students	N= 33 participants n_1 =12 (EG) Female=7 M_{age}=26.58 y.o n_2 =21 (CG) Men=16 M_{age}=26.38 years	**Content**: LOTE program: Low RC, long hiking **Duration**: n/a **Delivered by**: MBA students	- leadership practices inventory (LPI) (Kouzes & Posner, 2003) 30-items, (α=.70-.90) Pre-post test (1st week of semester & at final week)	- EG participants ↑ in challenge the process (B2) ↑ inspire a shared vision (B6) ↑ their frequency of leadership behaviors than the CG such as: - ability to speak with conviction (A1) - set a stronger personal example (B5) - build confidence in group members' abilities (B4) - experiment & take risks (B2)

Merritt (2010) U.S.A.	Qualitative (exploratory & descriptive) Business	To examine impacts of a RC experience as perceived by participants of a corporate leadership development program	N= 30	**Content**: Low elements: triangle puzzle, poly spots, bandanas, rope, traffic jam, keypunch, muse & wild woozy High elements: Giant ladder, team belay **Duration**: 1 day **Delivered by**: company employees	• interviews (1-hour focus group interview) • field observation	3 theme categories identified: -place (outdoor setting, away from office, recreational aspect, novelty) - process (placement within larger program, facilitator involvement, participant expectations) - person - leadership style of fellow participants (B5) - awareness of self & others (D1) - building rapport & trust (A4) - feeling of belonging & team cohesion (B7)
Ng (2001) Singapore	Quantitative (quasi-ER) Business	To explore any changes in teamwork & organizational attitudes that arise from AL program	N=345 Male =283 M age =30-34 y.o Education= 7-10 years (53%) WE= 20-30 years (26%) Pre-post test	**Content**: Adventure learning program (AL) (spider web-nitro crossing-trust fall & rope activities) **Duration**: 2-days **Delivered by**: Employees	• Task-participation (Campion et al., 1993) • Social-support (Ibbetson & Newell, 1996) • Team spirit (Watson et al., 1991) • Organizational id (O'Reilly & Chatman, 1986) • Collectivism (Wagner ,1995) 7-point Likert scale (α=0.69-0.78) Pre-post test	Significant positive changes : - Task-participation (.28) - Social-support (.16) - Team spirit (.22) B7 - Organizational-id (.45) C1 Model fit results: • ↑collectivism leading to smaller increases in task-participation & social-support • task-participation & social-support be mutually reinforcing in a teamwork situation

O'Bannon (2000) U.S.A.	Qualitative (quasi-ER) Business (financial)	To explore the perceived effects of the RC on the performance of intact work teams	N=68 n_1=37 (EG) n_2=31 (CG) Male=21 Female=16 WE= > 5 years (49 employees) Age= n/a	**Content**: RC teambuilding training **Duration**:1day(16h) **Delivered by**: Employees of multinational financial institution	• Team Performance Assessment 20-items, 6 sub-scales (Gilbert,1996) Pre-test & post-test (3-5 weeks later)	- Significant differences between CG & EG after the training in all sub-scales except trust - <u>EG largest increase in</u> : - communication (*M*=1.02) A1 - overall performance (*M* =1.02) - group cohesion (*M* =.87) B7 - goal setting (*M* =.85) C3 - performance (DM, use of member talents, team morale) (*M* =.79) - problem solving (*M* =.64) C7
Paul, Strbiak & Landrum (2004) U.S.A.	Qualitative (ER-case analysis) Education (university)	To explore & diagnose the team function of top management team during a training program	N=10 Male=9 Female=1 (Executive vice-president, section directors, department heads & office managers) WE= >20 years	**Content**: Low RC (desert trolley & Maui-to Kauai) **Duration**: 2-days **Delivered by**: Top Management Team of a public university	- Participant observation - field notes from 2 observers-consultants	- <u>Observed behaviors of team dysfunction as</u>: (B7) - the existence of power authority that unable them to accomplish their tasks-challenges - appearance of dependency wait from other to give directions or find the solution - blame others for their faults
Paxton & McAvoy (2000) U.S.A.	Quantitative & Qualitative Education (university)	To explore the long-term social psychological benefits of Wilderness Programs (WP)	N=118 n=68 (EG) n= 50 (CG) Age= >20 y.o No previous experience= 84%	**Content**: Wilderness adventure course **Duration**: 21-days **Delivered by**: MBA students Pre-post test & follow-up (1 year after)	− Self-Efficacy Scale (Bandura 1995) − Sphere-specific measures of Perceived Control (Paulhus, 1983) - Multattributional Causality Scale (Lefcourt, VonBaeyer, Ware & Cox, 1979) - Semi-structured interviews (n=20)	- Significant ↑ in post & follow-up test: - leadership (7.72)- work (6.56) - general self-efficacy (4.02) - interpersonal (1.86) & socio-political (2.92) - <u>transference of confidence gained</u>: - trust their own decisions & feel confident in their own abilities (B4) - Personal control & accepting failure as a learning experience (D6) - define themselves (A1)

Pazmino-Cevallos (2003) U.S.A.	Qualitative (quasi-ER) Education (High school)	To examine how team development within a workplace setting is affected using adventure education elements	N=61 n_1= 32 (EG) Female=30 Male=2 Age=20-59 13= master degree n_2= 29 (CG)	**Content**: Games, initiatives, low & ↑RC elements **Duration**: 1 day (8h) **Delivered by**: K-12 teachers	- Team Development Inventory (TDI) (Bronson, 1991,26-items, 8-point Likert, α=.98) Pre-post test & follow-up (2 weeks prior, directly after & 6-week after)	• Significant ↑TDI mean scores in EG >CG (F(1,59)=7.84, p=.001) • The scores of the CG remained constant throughout the 3 time periods (p=.05). (B7)
Rapposelli (2002) U.S.A.	Quantitative & Qualitative (quasi-ER) Education (university)	To investigate if team learning did occur as a result of participation in an adventure training program	N=44 Male=11 Age=21-35 y.o 73% (21-25 y.o) n=27 doctoral students(EG) n=17 CG	**Content**: Team building program: (climbing tower, zip line, ball passing, criss- cross, jump rope game) **Duration**: 1 day (6hours) **Delivered by**: doctoral students	- Questionnaire Team Learning Survey base on team behavior (33-items, Dechant, Marick & Kasl, 1990) - interviews in 3 students & university faculty 6 weeks prior-next day of program & follow up in 4 weeks later	-↑ team learning components: -framing & reframing (D1) - experimenting (B2) - operating principles (C7) - dialogue (A1) - men core significantly↑ in 3 dimensions: - appreciation of teamwork - operating principles - dialogue
Rodenbaugh (2002) U.S.A.	Quantitative & Qualitative Research (Q-methodology) Business (information systems, banking, healthcare, utility & independent training services)	To explore: (1) if changes in perception of authority occurs during a workshop (2) what is the nature of changes that occur	N=27 Female=18 Male=9 Age= late 20s-59 40-49 y.o (16) <40 y.o (7) > 49 y.o (4) n=23 from Fortune 500 companies Private sector=24	**Content**: -1-day traditional classroom lecture -2-days experiential event - 1-day application event **Duration**: 4-days **Delivered by**: Business executives	- Work Locus of Control scale (Spector, 1988,16-items) - Self-report measure of satisfaction of learning (Fruge & Bell, 1997, 14-items) - Open-ended, in-depth interviews Pre-post-follow-up (6 weeks later)	- change observed (n=17) - ↑ understanding of how they behave & respond to authority figures in their work & personal life - <u>Satisfaction with</u>: - Ability to transfer learning to work environment (58%) D6 - better understanding of team interaction (85%) A2 - improving affectivity on job (70%)C5 - better understanding of authority relations (75%) A4

Sail & Alavi (2010) Malaysia	Quantitative (quasi-ER) Business	To explore the extent of acquisition of knowledge on social skills & social values by trainers of institutes & coaches of industries in training of trainers (ToT) programs.	N=179 Age=41-50 (74.3%) M= 33.6 y.o 66.5% diploma & qualifications Expertise: Engineering (56.4%) Automotive (14.5%) Account & management (12.3%) WE: 10 years (80%)	**Content**: A ToT workshop 80% training time OT –experiential learning activities (given instructions & time limit for tasks & extra bonus gained if complete before the time limit) Briefing **Duration**: 4 days **Delivered by**: trainers & coaches of industries	-The social skills (conceptual , learning, self-discipline, communication, interpersonal, teamwork Multitasking prioritizing, leadership) - The social values (compliance, cooperation, diligence, honesty, meticulous, moderate, punctuality self-reliance) (Sail et al., 2007) retrospective post-then-pre-evaluation design	- 98.9% very confident about teaching social skills & values - 98.3% believe could be taught with appropriate teaching techniques - 98.3% needed additional knowledge in their vocational curriculum - ↑ knowledge acquisition: - Moderate increase 0.60 Communication (24%), Interpersonal (22%), teamwork (20%) - Meticulous increase 0.58 Conceptual skill (21%) Multitasking (20%) - cooperation increase 0.57 Teamwork (22%) B7, Interpersonal (18%) A2, Communication (15%) A1
Shivers-Blackwell (2004) U.S.A.	Quantitative & Qualitative (quasi-ER) Education (university)	To examine whether Outdoor Challenge Training (OCT) affected team development (communication, leadership & teambuilding skills)	N= 147 Male=102 Age= 21-42 y.o M= 25.7 WE= 67.3% 1-5 years	**Content**: OCT (warp speed - the spider web) **Duration**: 1 day **Delivered by**: MBA students	- Teamwork attitudes (6-items) - Team performance observation (12-items) Team viability measures: - Team support (4-items) - intention to remain in a team (2-items)	• teamwork attitude was related to team support for using what was learned, team potency, cohesion & intention to remain in the team (B7) • performance in OT was not related to any of the team viability variables
Watson & Vasilieva (2007) U.K.	Qualitative (case study) Business	To evaluate the sustainability of learning derived from a novel leadership development process	N=100 managers from public & private sector	**Content**: Outdoor management training –leadership development focused **Duration**: 1-day **Delivered by**: Business managers from U.K.	- program evaluation - personal reflections written by participants (2 weeks after & 1 year later) - reflective paper from 360 data & peer feedback	-↑in self-confidence & self-belief (D7) - sustainable personal change (D2) - link the personal change with work performance & work-life balance - emotional competence (B4) - lifelong self-development (B1) - training environment (D6)

Wolfe & Dattilo (2007) U.S.A.	Qualitative (ER) Health sector (dental center)	To examine participants' perceptions of a challenge course program designed to increase understanding of teams& challenge courses	N=16 Female=11 (2=front desk workers, 2= owners & 16 dental assistants) Age= 21-55 y.o WE=6 months-20 years	**Content**: Challenge course: - boat/island - warp speed - turnstile High elements: cat walk; pamper pole; zipline **Duration**: 1-day **Delivered by**: employees of a dental centrer	- Participant observation - 2 individual Interviews (45 m each one) 3 days & 6 weeks after - Videotape the group - Member checks	- communication effectiveness (A1) - co-operation (working together, leading, following, group size & accomplishment) (B7) - camaraderie (togetherness, seeing others, getting know others & bonding) (A4) - changes in emotion - I've got to do it (D7) - individual emphasis (D9) - support & encouragement (B4) Post program effect only in camaraderie
Wolfe & Dattilo (2006) U.S.A.	Qualitative (ER) Health sector (dental center)	To explore participants' perceptions: (a) of a one-day challenge course program (b) related to communication during & after a 1-day challenge course program				- <u>For Effectiveness of communication</u> 4 sub-themes emerged: - group size (smaller groups) - activity progression - listening & responding; - multiple talkers - <u>Too many chiefs</u>: - difficulty with decision making - group confusion - role uncertainty & failure (a) communication is an evolving, dynamic process (A1) (b) perceptions of success & failure can occur at the macro & micro level (D3) (c) team leadership is dependant on effective communication (B7) - more self-confident, more trusting persons (after 6 weeks)(D7)

Appendix D2. Appraisal of methodological creteria for included studie's characteristics-
Student sample (n=29 studies)

Source	Design/ Sector	Aim/ hypothesis	Sample	LD Program/ Intervention	Instrumentation	Results
Austin, Martin, Mittelstaedt, Schanning & Ogle (2009) U.S.A.	Quantitative & Qualitative Education (university)	To explore: (1) the degree to which the Outdoor Orientation Program (OOP) fosters the sense of place among new students (2) the social benefits of participation in OOPs	N= 118 RS=63% Male=57 (48%) Female=61 (52%) Age groups: 18-21 y.o (10.9%) 18 y.o (79.6%) 19 y.o (9.5%)	**Content**: OOP (19 different trips): backpacking, canoeing, car camping, sea kayaking, base-camping, climbing, group formation activities **Duration**: 5-days trips (64.6%) 3-days (26.5%) 12-days (8.9%) **Delivered by**: 1st year College stud.	- Questionnaire with 32-items (5-point Likert scale) *1. <u>Sense of place</u>:* -Knowing the region(α=.76) - Attachment (α=.82) - Concern (α=.79) *2. <u>social benefits</u>:* - personal comfort(α=.72) - try new things (α=.81) - exposure to cross-cultural ideas (α=.81) - confidence with unfamiliar settings (α=.39) - 9 interviews pre-post test	- ↑ friendship (A4) (t_{91} = -15.15, p < 0.01) - ↑ trust (t_{82} = -7.32, p < 0.01) - All social benefits components showed significant gains: - 78% report having a discussion with someone from a different background (A2) - 88% exposed to new ideas - 93% gain social benefits - 22% new experiences or skills - 15.3% fear reduction (D7)
Beezley (2007) U.S.A.	Qualitative (Phenomenological research) Education (university)	To find the most meaningful trip components of participants for their personal Growth	N= 6 Male=2 Female=4 Age=21-26 y.o	**Content**: 17-days trip including: - Backpacking -Car travel - Solo - Rock climbing - Whitewater rafting **Duration**: 17 days **Delivered by**: College students	- Participant's journal - interviews	<u>5 components were identified</u>: Risk/ challenge, natural environment group dynamics, outdoor skill development, confidence, empathy & compassion for others <u>Analysis of qualities found</u>: - they realize their negative & positive behaviors & how they could improve them (D1) - patience (D7) - transference (see an ability they never knew they had) (B1) - empathy & compassion (A4) - confidence & collaboration (B7)

Belknap (2011) U.S.A.	Quantitative & Qualitative (quasi-ER) Education (university)	To measure the perceived gains in trait emotional intelligence for students participating in the OOP	N=317 RS=55% n=117 Explore n=131 Odyssey n= 38 Habitat n= 31 Wilderness Male=153(48%) Female=163(51%) 56% previous experience in service learning program Pre-post test	**Content**: 4 Programs: - odyssey (high RC) - explore (white-water, rock climbing, hiking and camping) - Habitat (community service projects) - wilderness (backcountry living & hiking) **Duration**: 7-days **Delivered by**: College students	- Recreation Experience Preference (REP) scale (Driver,1983, 37-items, 8 domains α= .76 -.85): - Intelligence Questionnaire Short Form (TEIQ-SF) (Petrides &Furnham,2006; Cooper & Petrides, 2010) (30-items, 15 subscales)	- <u>Significant gains in 18/30 of the TEIQ with the greatest :</u> - pause & think about my feelings - personal strengths (D1) - expressing emotions (A1) - Able to get into someone's shoes & experience their emotions (D1) - <u>Significant gains in 4 domains</u>: - emotionality - sociability - well-being - self-control - significant differences founded per trip in self control, sociability & global TEI with ↑scores in Odyssey & Explore programs
Bell (2006) U.S.A.	Quantitative research Education (university)	To investigate whether students differ in reported levels of social support by different types of pre-orientation experiences	N= 1601 <u>Harvard students</u> with wilderness experience(WE) =**207** Total Harvard students =721 Male=304(42%) Female=419(58%) <u>Princeton students</u> with WE= **485** Total Princeton students =901 Male=389(43%) Female=512(57%)	**Content**: Pre-orientation experiences : - orientation WT(6-days) - community service (6-days projects) - preseason athletics **Duration**: 6-days **Delivered by**: 1st & 2nd year College students	- Campus-Focused Social Provision Scale (CF-SPS, 24-items, 6 sub factors, α=.93): - attachment - reliable alliance/support - guidance - reassurance of worth (recognized competence) - social integration - Opportunity for nurturance One-time test (6 weeks later)	- Main effect pre-orientation programs F (5, 1.558) = 7.59. p < .001 - wilderness pre-orientation group had significantly ↑mean CF-SPS scores (B3, A4, D1,B4) - gender effects on overall CF-SPS scores with the largest in attachment follows guidance, nurturance & tangible support

Belter (2008) U.S.A.	Quantitative & Qualitative (quasi-ER) Education (university)	To examine self-assessed Problem solving ability for participants that are exposed to a group initiative session	N= 88 M_{age} =19.4 y.o n_1= 63(EG) Male=38(60.3%) Female= 25(39.7%) n_2= 25 CG Male =40%	**Content**: group initiative session **Duration**: Half-day (4hours) **Delivered by**: College students	- Problem Solving Inventory (PSI ,Heppner & Peterson, 1982, 32-items, 3 sub-scales) -PC confidence, -Approach- avoidance style - Personal control (PC) Pre-Post test (immediately after & follow-up (5 & 9 weeks later)	-↑self-appraised total solving ability in EG only immediately after but not in follow up (5 & 9 weeks later) (C7) - ↑ self-appraised PC in EG only immediately after but not in follow up (5 & 9 weeks later) (D1)
Birx, Wagstaff & Van Patten (2008) U.S.A.	Quantitative & Qualitative (quasi-ER) Education (university)	To eexplore the use of RC experiences as a teaching strategy to promote caring & group cohesion among nurse students	N= 68 Male=4 Female=64 n_1= 34(EG) n_2= 34(CG)	**Content**: Challenge course (high ropes) **Duration**: Half-day (4hours) **Delivered by**: nursing students	-Caring Ability Instrument (CAI, Nkongho, 2003, α=.83) - Group Cohesion Questionnaire (GCQ, Van Andel et al., 2003, α=.88) - open-ended instruments eliciting student reflections Pre-post & follow up (7 weeks later)	- Both groups had a small but statistically significant ↑ in posttest: - in CAI scores (t = 2.715, p.<.05) - in GCQ scores (t = 11.174, p.<.05) • <u>7 major themes</u> : 1.getting to know each other & becoming closer (A4), communicate better (A1), trust in self & in others (A4) support & encouragement (B4), gaining confidence (D7) teamwork to accomplish more (B7), having fun
Breheny (2000) U.S.A.	Quantitative & Qualitative (ER) Education (university)	To compare a low RC experience vs. classroom training on the Problem solving self-appraisal of college freshmen	N= 39 M_{age} =19.2 y.o n_1= 21 (EG-treatment II) Male=14 Female=7 n_2= 18 (CG - treatment I) Male=11	**Content**: <u>Treat I:</u> 4 hours class <u>Treat II</u>: 4 h low RC (group juggle, spider's web, TP shuffle, porcupine progression, nitro crossing) **Duration**: 4 hours **Delivered by**: college freshmen	- PSI (Heppner, 1988) Pre-Post test (2 & 6 days after) & follow-up (10 weeks later)	- No differences between treatment I & II in post-test & follow-up - Significant ↑ on the total PSI, Problem-solving confidence (C7) & Personal control (D1) in the group following a RC experience - These positive changes were maintained 10 weeks later

Breuning, O'Connell, Todd, Anderson & Young (2010) CANADA	Quantitative & Qualitative (interviews) Education (university)	To understand the relationship between college students' participation in outdoor pursuits trips & changes in their perceptions of sense of community over time	N=98 Age=19-52 y.o (M_{age} 22.9 y.o) Male=43(44%) Female=55(56%)	**Content**: 13-day Outdoor Education Practicum course: -7 days camp (ice-breakers, planning their trip needs, practicing technical skills in a camp craft Olympics, low RC) - 6 day canoe WT **Duration**: 13 days **Delivered by**: college students	- Perceived Sense of community Scale (Bishop, Chertok & Jason, 1997, 30-items, 3 sub-scales, α= .96) :- Mission - Reciprocal responsibility Harmony- Group Cohesion - Evaluation Questionnaire (Glass & Benshoff, 2002) 9-items (α= .96) Instruments were given 3 times: 3^{d}day, 11th, 13^{n} Follow up focus group session	- Significant ↑ in both scales: - Community (A2) - Cohesion (B7) in 3 times given - From interviews factors contributing to sense of community are: - group-oriented activities - trip challenges & - debriefing
Ewert & Overholt (2010) U.S.A.	Quantitative Education (university)	To examine the effectiveness of a short-term expedition-based on outdoor experience on the LS level of program participants	N= 85 n_1= 18 (EG) Male=11 Female=7 n_2= 71 (CG) Male=36 Pre-test: 2 days before Post-test: 3 days after Follow up (3 weeks after only exp. Group)	**Content**: Solo Summit climb Final expedition Long walk **Duration**: 3-week expedition **Delivered by**: College students	- Empowering Leadership Questionnaire (ELQ) (Arnold, Arad, Rhoades, & Drasgow, 2000, 15-items, 5 factors, α=.85): - Leading by Example(B5) - Participative DM (C7) - Coaching (B3) - Informing - Interacting with the team - Leadership section of the Outward Bound Outcomes Instrument (OBOI) (Frankel & Ewert, 2009, 24-items, α=.73)	- significant group effect on both leadership measures: - ELQ, $F(1, 46) = 12.75$, $p < .05$ - OBOI, $F(1, 44) = 7.14$, $p < .05$ - treatment group score ↑ LSs - treatment group indicated a significant difference for both the ELQ & the OBOI over time (pre-post-follow up) - ELQ, $F(1.34, 17.41) = 22.42$, $p < .001$, = .633 - OBOI, $F (2, 28) = 14.71$, $p < .001$, =.512

Fields (2010) U.S.A.	Quantitative & Qualitative (interviews) Education (university)	Explore the leadership self-efficacy of student leaders who participate in a outdoor education leadership training program (OLTP)	N=15 Age= 18-24 y.o Male=8 (53%) Female=7 (47%) No previous experience in leading groups in Wilderness Trip(WT)	**Content**: An OLTP & leading a pre orientation WT (18hours classroom leadership workshop-2 days CPR & Wilderness first aid training- 4 days wilderness leadership training) **Duration**: 4-days **Delivered by**: College students	- Outdoor Recreation Self-Efficacy (ORSE) scale (Mittelstaedt & Jones, 2009, 18-items, α=.95) - Leadership Self- Efficacy scale (Dugan & Komives, 2007,4-items, α=.95) - Interviews (6 months later) Pre-post test & student leaders evaluation 5 students interview	- significant differences in ORSE scale (↑ score in post-test) affected: Capable /competent (B1) confident (D7) adequate; success/ achievement (D3); able to choose; succeed (D3) & empowered (B4) <u>- themes from qualitative data</u>: - success through interpersonal relationships (A4) & increased self-efficacy -leadership as an effect & as interaction (A4) - transferability of LSs in other areas in students' lives & adaptation (D2) - increase personal leadership self-efficacy (B1)
Fletcher (2000) U.S.A.	Quantitative & Qualitative (ER) Industry (sports)	To investigate whether participation in a low-element challenge program increase the overall, social & task cohesion of a collegiate women's volleyball team	N=8 Female=8 Age= 18-26y.o	**Content**: low-element challenge program 7-elements: (All aboard, whale watch, mohawk walk, trust fall, wild woosey, spider web & river of dreams) **Duration**: 1-day **Delivered by**: Collegiate women volleyball players	- Group environment questionnaire (Carron, Widmeyer & Brawley, 1985, 18-items, 4 sub-scales : -group integration/closeness social & task -individual attraction in the group social & task - Observation - Follow-up interviews Pre (1 week prior) Pre-pre (immediately before) Post (immediately after) Post-post (3-4 weeks after)	- ↑<u>of overall team cohesion</u> (B7) - increase of social cohesion of the team (A2) - increase of task cohesion of the team (comfortable taking different roles in Problem solving (B2) & addressing conflicts (D8) <u>6 aspects of the program effect cohesion:</u> - the setting - perceived risk - being in a state of disequilibrium - the counselor/facilitator - micro-processing - debrief & transfer to real life

Frauman & Waryold (2009) U.S.A.	Quantitative (ER) Education (university)	To examine whether participating in the First Ascent Program positively contributes to an individual's perception of life effectiveness	N=647 n_1=42 participants in ORLC program Male =16 n_2= 105 participants in First Ascent program Male=61 n_3= 500 (CG)	**Content**: Wilderness Program **Duration**: 4-days **Delivered by**: College students	Online survey - Life Effectiveness Questionnaire (LEQ) (Neill, Marsh & Richards, 2003) Pre-post test (2 weeks later) Follow up (at the end of semester)	- in First Ascent group task leadership (D3), time management (C5) & social competence (A4) were perceived to increase over time (significant effect) - the First Ascent and ORLC in comparison to the CG scored ↑on every dimension of the LEQ except for Achievement Motivation and Self Confidence
Greffrath, Meyer, Strydom & Ellis (2011) AFRICA	Quantitative & Qualitative (ER) Education (university)	To compare a Centre-Based Adventure Programme (CBAP) with an Expedition-Based WP (EBWP) with regard to personal effectiveness	N=28 Male=14 Female=14 Age= 20-23y.o M_{age} = 21.6 y.o	**Content**: CBAP (low LC: Giants & Elves, Toxic Waste, Footloose, Mohawk Walk) & high RC: Jacob's Ladder EBWP (prior 3h of solitude or solo & 5-day trek) **Duration**: CBAP = 2 days EBWP = 7 days **Delivered by**: College students	- Review of Personal Effectiveness & Locus of Control (ROPELOC) (Richards, Ellis & Neill, 2002, 45-items, α=.85, 6 sub-scales: - personal abilities- beliefs - social abilities - organizational skills - active involvement - overall effectiveness - Semi-structure one-on-one & focus group interviews - Field observation Pre-test (day before) Post-test (after programs) Focus group & one-one interview	- Both programs effective for developing personal effectiveness - Change during the EBWP was largely ascribed to the effect of the wilderness environment - solo or solitude was the most important component that lead to personal development (D1,C5,A4) - also active involvement & the continuing social interaction -↑in post-test : - Social abilities - social effectiveness - cooperative teamwork (B7)

Harum & Salamuddin (2010) Malaysia	Quantitative Research Education (High educations & teacher training institutes)	To identify the elements (gender & module) that may influence the personality development among participants in an outdoor education program. And to prove that personality changes remain in the participants for a certain length of time	N= 671 Female=422(63%) n_1=590 (EG) Male=208 Female=382 n_2=81 (CG)	**Content**: Outdoor education programs-OEP (no details given) **Duration**: n/a **Delivered by**: students	• LEQ (Neill, Marsh & Richards, 2003) Pre-post-follow up test	- Greater leadership ability (60%) (t = 42.79, p <0.05) B5 - coping with change (61%) D2 (t = 24.71, p <0.05) - confidence (t = 37.07, p <0.05) D7 - cooperation (t = 24.71, p <0.05) B7 - OEO module had a significant contribution (F=30.78, p<0.05; η^2= 0.57) to changes in personality development (B1) - The program module predicts significantly for cooperation ($r_{pmodule}$= 0.50, p<0.05) - Gender predicts significantly for self efficacy ($r_{pgender}$= 0.52, p<0.05) - Changes remain for a period of time
Hatch & McCarthy (2005) U.S.A.	Quantitative & Qualitative Education (university)	To examine the long-term effects of a half-day low RC program in the group functioning & effectiveness	N= 76 Male=16 (21%) M_{age}= 20.57 y.o Previous experience=45%	**Content**: Low RC: "Minefield" & the "TP Shuffle." **Duration**: 4-hour **Delivered by**: University students leaders in organizations	- Perceived Cohesion Scale PCS (Bollen & Hoyle, 1990, 6-items, α=.93-.97) - Group Environmental Questionnaire (GEQ) (Carron, Widmeyer, & Brawley, 1985, 18-items, α=.85-.91) - Personal & Group Effectiveness Scale (PGE, self designed, 20-items, α=.96-.98) - Pre (1week) –Post (prior start) & (immediately after) -follow up (2 months later)	- short-term effects in: - cohesion/ group effectiveness (B7) - individual effectiveness within the group (C5,A2) - no maintained effects in follow up measure after 2 months

Hayashi (2006) U.S.A.	Quantitative & Qualitative Education (university)	To examine the effects of an outdoor leadership program on the development of emotional intelligence and leadership	N= 110 n_1==72 (EG) Male=41 Female=31 Age=19-26y.o M_{age} = 21.2 y.o n_2=38 (CG) Male=11 Female=27 M_{age} =21 y.o	**Content:** Wilderness Education Association (WEA) National Standard Programs (backpacking, rock climbing desert trip etc) **Duration:** 6-32 days **Delivered by:** University students	- Emotional Quotient Inventory (Bar-On, 2002) - Multifactor Leadership Questionnaire (Bass & Avolio, 1997) - New Social Desirability Scale (NSDS) (Strahan & Gerbasi, 1972). - Outdoor Leader Experience Use History (Galloway, 2003) - Emotional Intelligence Experience Questionnaire - WEA Final Assessment Summary by instructors - semi-structured interviews (n=7) Pre-post test	- significant positive relationship of EQ TL & outcomes factors - ↑post test scores in both Transformational leadership (builds trust (B4), acts with integrity, inspires others (B6), encourages innovating thinking (B2) & coach people, B3) & EQ - a significant positive change in stress management - ↑ level of EQ; - ↑ level of leadership, Decision making (C7) , expedition behavior & communication, A1 (from observation)
Hinton, Twilley & Mittelstaedt (2006) U.S.A.	Quantitative & Qualitative Education (university)	Explore the impact of a week long Orientation WP on the self-efficacy	N=254 Age= 17-19 y.o n_1=25 (EG) Male=14 Female=11 n_2= 229 (CG)	**Content**: WT **Duration**: 1 week **Delivered by**: University students	- Perceived Competence of Functioning Inventory PCFI (Hays & Williams, 2000, 16-items, 3 subcales) - self-competence - role competence - relational competence - Extensive essay (6 weeks later) Pre-post (immediately) & 8 weeks later	- A positive change in PCFI scores - No significant differences between EG & CG - Men showed a sharp ↑ at post-test & a decline at follow-up - Women an ↑ at post-test & even greater ↑at follow-up - 79% indicated changes in: - general self-efficacy (D7) - interpersonal self-efficacy (A2) - physical self-efficacy (D4) - ↑awareness of others especially breaking down stereotypes (D1)

Hobbs & Spencer (2002) U.S.A.	Quantitative & Qualitative Education (university)	To examine the possible student changes in their Leadership skills after participating in the WEA WS course	N=12 Male=8 Female=4 Age= 20-26 y.o M_{age} =22.6 y.o	**Content**: WEA wilderness course (canoe-hikes, camping) **Duration**:2 weeks **Delivered by**: University students	- Journal Keeping - Peer review with the student observation tool - Leadership Skills Inventory (LSI, 125-items) (Karnes & Chauvin, 1985) Pre-post test	- Significant difference with ↑ post test in 4 of 9 leadership categories: - Fundamentals of Leadership (B5) - Speech Communication Skills (A1) - Character-Building Skills (D1) - Group Dynamic Skills (B7)
Human (2006) AFRICA	Qualitative (Phenomenological research) Education (university)	To understand the counseling psychology students' experience of an RC program	N=6 Female=5 Age= 23-32 y.o **Delivered by**: master student	**Content**: - Ice breaks: willow in the wind & trust full -Low: minefield, tyres, Mohawk walk, spider's web - High: inclined log, postman's walk, multi vine, balance beam & high all abroad **Duration**: 1 day	- writing an assay on their experience - one-one interview - peer evaluation (data analysis & results were presented in 2 independent psychologists for evaluation Briefing-activities-debriefing	- challenge participants' boundaries - feel of anxiety (unknown to participants the nature of activities) - <u>aware of different roles</u> : - leading (B5) - cooperate (B7) -communicate (A1) - deal with conflict (D2) - restore group cohesion (B7) - trust themselves & other people (A4)
Leberman & Martin (2005) N. Zealand	Qualitative (ER) Education (university)	To discusses the holistic method of experiential course design called dramaturgy as applied to an undergraduate 3rd-year management course-the Action Learning Management Practicum (ALMP)	N= 20 Male=10 More than half had WE as: senior managers; human resource; consultants; teachers & military personnel. Post (2 weeks) Follow-up (6 months) & observation	**Content**: Outward Bound Activities such as: -blindwalk clay - medusa ring - treasure hunt - camel trophy **Duration**: 5-days **Delivered by**: University students	<u>Questionnaires via email & 3 assignments:</u> - (prior to course) an essay based on management development - (post) a reflection upon their personal & PD from the course - A final report either real or fictional on an experiential management development course for organizations ' staff	- The value of experience evolvement : - Developing relationships (A4) -recognition of different behaviors under pressure -teamwork (B7) - pushing personal boundaries (D7) -honest reflections, - setting goals & taking the time to know one self (D1) - Increase leadership qualities (B1) - confidence (D7)

Liang & Bo (2009) China	Quantitative (ER) Education (university)	To test the effects of Outward-Bound-type program on the personal development of college students	N=134 Male=99 (73%) Female=35 (27%)	**Content**: Outward Bound course: team setting up, Problem solving, communication, team adventure & individual challenge **Duration**: 3-days **Delivered by**: college students	- LEQ (Neill, Marsh & Richards, 2003, 24-items, 7 factors, α=.84) - time management (α=.71) - social competence (α=.87) - achievement motivation (α=.74) - intellectual flexibility (α=.70) - task leadership & active initiative (α=.83) - Emotional control (α=.87) - self confidence (α=.83) Pre-post test	Significant changes in all 7 factors: - time management had the greatest change (ES=.89) C5 - shelf confidence & achievement motive (ES=.75) D7 - social competence (ES=.72) A2 - Emotional control (ES=.67) D1 - intellectual flexibility (ES=.66) - task leadership & active initiative (ES=.59) D3
Martin (2001) N. Zealand	Quantitative & Qualitative (Case study) Education (university)	To explore the main outcomes perceived by participants related to the course objectives of personal & interpersonal development	N=165 n_1 =93(N. Zealand) Age=18-26 y.o n_2 =55 (CZ) n_3 =17 (AUS) Male=115 (70%) Female=50 (30%)	**Content**: 3 Outward Bound courses: - walking expedition - RC - 3-days solo - community service - camel trophy - creative workshops - role playing **Duration**: 22 & 9 days **Delivered by**: international students	• participant observation • semi-structure interview • course questionnaires - LEQ (Neill, Marsh, & Richards, 2003) - Review of Personal Effectiveness (ROPE) system (Richards & Neill, 1996) (pre & 6 months -1year-2 years post course)	• improved self-confidence • better interpersonal relationships (A4) • self-awareness (D1) • team dynamics /teamwork development (B7) • increase the skill of problem solving (C7) • personal change (B1) • increased trust (A4)

Odello, Hill, Coryland & Gomez (2008) U.S.A.	Quantitative & Qualitative (quasi-ER) Education (university)	To examine the effects of participation in a 4-hour challenge course on leadership efficacy & work efficacy of college students	N=43 Male=12 Female=31 Age= 18-36 y.o $M_{age=}$ 21 y.o 65% (n=28) no previous experience in challenge course 56% were involved as leaders in a student, religious, or outside group 62% working part-time 7% working full-time	**Content**: Challenge course included activities: Noodle Walk, TP Shuffle, Ping Pong Ball Pass, Whale Watch, Mohawk Walk, Spider Web, and Group Lap Sit **Duration**: 4- hours **Delivered by**: College students	• Self-efficacy and outdoor adventure programs questionnaire (α=.90) (Paxton, 1998) Pretest (before the course completed) Posttest (immediately after) Follow-up (6 weeks after)	- Significant ↑ in leadership *t* (42) = -3.37, *p* = .001 (B5) - Significant ↑ in work efficacy *t* (42) = -4.08, *p* = .001 (C5) - work efficacy had a larger effect on the participants than leadership efficacy - Last for at least 6 weeks after leadership & work efficacy
Phipps & Hayashi (2005) U.S.A.	Qualitative (case study) Education (university)	To ascertain the possible changes in the students' perceptions of the MLQ leadership constructs after this WEA course using the WEA and ELE leadership teaching methods	N= 8 participants Male=5 Female=3 Age= 20-24 y.o	**Content**: Teton course provided by WEA **(**mountaineering, camping, ice-climbing) **Duration**: 16-days **Delivered by**: College students	-Multifactor Leadership Questionnaire (MLQ) (Bass & Avolio, 1995) 32 specific behaviors and attributed charisma (self-report, α=.69-.85) - observations pre-post test	Significant changes in 2 leadership outcomes : - extra effort (D3) - effectiveness (C5) the observed MLQ factors by instructors: - many factors covered except: - passive management by exception - laissez –faire

Roark & Norling (2010) U.S.A.	Quantitative & Qualitative (quasi-ER) Education (university)	(1)To examine the application of using a experiential learning model on acquisition of the following 3learning outcomes: planning, knowledge/skill & potential for transfer of learning and (2) to recognize the effectiveness of previous student trip experience on learning outcomes	N=24 Male =11 Female=13 M_{age}= 23.08 y.o no previous experience=11 1-2 trips=11	**Content**: - a one-day fishing excursion - a day hike in canyon - an overnight backpacking trip - a 4-day canyon trip - a formal 20-minute group delivered power point presentation & debrief **Duration**: 5-days **Delivered by**: Undergraduate University students	- 12-items questionnaire measured the learning outcomes of : - planning (3-items) - knowledge/skills (4-items) - transfer of learning (5-items) - 3 open-ended questions Pre-post test	greatest items learned from the trip: - risk management issues (n=5) C5 - outdoor skills (n=4) - Planning (n=19) C7 - Working in a group (n=5) B7 - Integrate & applying information (n=2) Transfer of learning: - presentation & discussion (n=7) - identified management issues discussed in the class & in the field (n=6) - become more aware of other management issues (n=5) D1 - values clarification (n=3) A1
Rothwell, Siharath, Badger, Negley, & Piatt (2008) U.S.A.	Quantitative (exploratory research) Education (university)	To explore a new framework for understanding group dynamics during a challenge course experience	N=12 Male=7 Female=5 M_{age}=24.7y.o	**Content**: challenge course: - Group juggle - Identity crisis - Toxic waste - Trust fall - Trust run - Commitment - High ropes-Incline log **Duration**: Half-day **Delivered by**: 1st year medical students	- The Emotional Group Culture Coding System (EGCCS) Reliability: (overall agreement = .74 & κ=.63) - digital voice recorder with a microphone - interaction process analysis	Most reported behaviors: - fight statements which are irrelevant or not related to the group tasks (as criticism, hostility) - dependency statements (the group desires direction or seeks compliance with current group leadership) B5 - counter dependency statements (indicate that the group is trying to reject and/or establish their independence) B2 - The structure of the initiative but also how the facilitator guides a group through an experience can impact on group dynamics B7

Shooter, Paisley & Sibthorp (2010) U.S.A.	Quantitative (study 1 : exploratory Study 2: factorial survey) Education (university)	<u>Study 1:</u> To identify behaviors of trust <u>Study 2:</u> To indicate the likelihood to trust based on the varied attributes of ability, benevolence & integrity	N= 245 Study 1: n=181 students Male=85 Female=96 M_{age} = 22.8 y.o Study 2: n= 64 students Male =36 Female: 28 Age= 18-55 y.o M_{age} =24 y.o n=6 panel of experts	**Content**: 2 university outdoor skills classes **Duration**: 2 days **Delivered by**: Students	- An outdoor leader trust questionnaire (44-items, consisting of 22 positively worded & 22 negatively) - likelihood to trust scale (ability- benevolence & integrity post test	• <u>5 most negative influence</u> - Absence of knowledgeable about safety, calm in crisis, enough experience- effective communicate - not practice what he preaches • <u>5 most positive influence</u>: - is honest - is calm in crisis D2 - knows itinerary - shows respectC5 - communicate effectively A1 - Ability surfaced as the most influential of the 3 determinants, followed by benevolence & integrity
Sottile, Parker & Watson (2000) U.S.A.	Quantitative & Qualitative (ER) Education (university)	To investigate how an experiential RC can impact undergraduate students development	N= 22 Age=18-26 y.o	**Content**: RC: - Mohawk Walk - human knot **Duration**: 2 days **Delivered by**: College students	- Observations - Journal writing - Open-ended questionnaires (56-items) - Interviews Pre-post test	<u>- 4 themes emerged</u>: (trust, friendship, community & communication) <u>- RC can increase student's ability</u>: - Problem solving C7 - build & teach trusting others A4 - become community members A2 - their interpersonal skills - social skills & physical ability
Wiltscheck (2000) U.S.A.	Qualitative (ER) Education (university)	To identify the possible appearance of changes to team dynamics during a RC & a follow-up after	N=134 2 groups: n= 54 random sample n= 80 students from an class of organizational leadership In both groups: Male=80 (60%) Female=54 (40%)	**Content**: RC for team building, communication, risk taking, DM & leadership **Duration**: 1-day **Delivered by**: university students	• Observations • Feedback (debrief sessions) • 8 questions (5-point Likert scale) Pre-post test	Significant change in functioning as a team based on: (C5,A4,A1,B1,D8) - goal accomplishment (M=.34±.13) - feel about their jobs (M=.46±.24) - trust (M=.22±.18) - communication (M=.39±.21) - enhancement of skills (M=.41±.10) - conflict handling (M=.39±.02) - their decisions affecting each other (M=.46±.13)