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The role of wilderness experiences in leaders' development toward authentic leadership

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Abstract

Purpose – The purpose of this paper is to investigate the impact of leaders' wilderness experiences on intentions to transform leadership behaviors toward authentic leadership.

Design/methodology/approach – Content analysis was used on trail reports made by participants of a wilderness-based leadership program. Participants ($n = 97$) were leaders working in business and institutional settings, both males and females. Participants were asked to write personal reports within two weeks after the training program about their wilderness experiences, and related behavioral intentions.

Findings – The analyses revealed four categories of leaders' peak experiences: heightened sense of self, awareness of one's core values, deep connected attention, and being in full presence. These peak experiences triggered intentions to change future leadership behaviors: to be more aware of self, to live by the inner compass, to improve careful listening, and to become more transparent. These intentions closely resonate with the core components of authentic leadership.

Research limitations/implications – The authors' sample is characterized by developmental readiness: people who are already willing to change. However, developmental ready leaders are the subset of leaders that is particularly relevant studying change toward authentic leadership. Another limitation is intentions are assessed, and hence knowledge about actual changes in leadership style requires additional research.

Practical implications – The attributes of the transformation program that foster change as revealed here – being in another world, facing unfamiliar challenges, peer-to-peer learning – can be flexibly adopted and implemented in a wide range of leadership transformation programs.

Originality/value – By demonstrating that being immersed in nature can act as a significant life event that has the potential to foster authentic leadership, this study provides an original contribution to the literature on strategies for intra-personal leadership development.

Keywords Leadership development, Authentic leadership, Transformation, Self-awareness, Peak experiences, Wilderness

Paper type Case study

Introduction

In the "Survey on the Global Agenda," held at the World Economic Forum 2015 in Davos, 86 percent of the respondents of a sample of 1,767 organizational leaders agreed that we have a leadership crisis in the world today (Outlook on the Global Agenda, World Economic Forum, 2015). More than 50 percent of the participating leaders indicated lack of confidence as the root cause. Notably, the role of leadership is intensively discussed in contemporary western societies. Corporate scandals such as the Enron scandal and financial sector scandals have had a detrimental effect on trust in leaders. Also, leadership has become more complex, and performance pressures tend to increase. The role of contemporary leaders extends from a focus on traditional values (e.g. product/service quality, financial performance) to a broader orientation that includes social responsibility and environmental stewardship (Crooke *et al.*, 2015).

Transformation into authentic leadership is advocated as a desirable shift that responds to these leadership challenges (Gardner *et al.*, 2005; George and Sims, 2007; Luthans and Avolio, 2003; Walumbwa *et al.*, 2007). The concept of authentic leadership reflects a pattern of behavior that draws upon and promotes both positive psychological capacities such as

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hope, optimism, confidence and resilience (Clapp-Smith *et al.*, 2009), as well as a positive ethical climate (Lamumbwa *et al.*, 2007). Development into authentic leadership requires considerable intra-personal transformation and conventional leadership training programs probably fall short in doing so (Harung *et al.*, 2009). A different approach to foster self-awareness and increase self-regulation (Day, 2012), and constitute significant life events (Luthans and Avolio, 2003; May *et al.*, 2003), is likely to be more successful. Research suggests that immersion in wilderness can evoke significant life events (Csikszentmihalyi, 1990; Maslow, 1964) and increase self-awareness (Friese *et al.*, 1995) and self-regulation (Bratman *et al.*, 2012). As a novel contribution to the literature, the aim of the present study is to investigate the potential of wilderness experiences to foster intra-personal shifts toward authentic leadership. We examined the written reports of organizational leaders participating in a wilderness-based leadership transformation program.

Theoretical foundation and research questions

Authentic leadership

Societal challenges have fueled a focus on leadership styles and characteristics (Avolio and Gardner, 2005), to promote "post-traditional" forms of leadership (Avolio and Luthans, 2006; Cooper *et al.*, 2005), as expressed by various concepts such as transformational (Bass and Steidlmeier, 1999), ethical (Brown *et al.*, 2005), spiritual (Fry, 2003; Crossman, 2011), and authentic leadership (Avolio *et al.*, 2004; Avolio and Luthans, 2006; George and Sims, 2007). The concept of authentic leadership is the most comprehensive one as to include leadership attributes articulated by the other concepts (Avolio and Gardner, 2005: Gardner *et al.*, 2005; George and Sims, 2007; Luthans and Avolio, 2003; Lamumbwa *et al.*, 2007). The notion of authentic leadership entails the assumption that being authentic constitutes morally good leadership (Hannah *et al.*, 2005; Luthans and Avolio, 2003). Several scholars have argued, however, that there is no a priori reason to assert that acting in line with one's authentic self would establish better leadership behavior (Ford and Harding, 2011; Nyberg and Sveningsson, 2014; Shaw, 2010). Yet, the technical conceptualization of the concept into the four core components of self-awareness, an internalized moral perspective, balanced processing of information, and relational transparency (Avolio, Walumbwa and Weber, 2009) arguably reflects leadership traits that are conducive to meet contemporary challenges. Self-awareness refers to a process of reaching a deeper understanding of one's strengths and weaknesses (Gardner *et al.*, 2005). An internalized moral perspective reflects a self-regularity process whereby leaders use their internal moral standards and values to guide their behavior rather than allow outside pressure to control them. Balanced processing implies leader's ability to analyze information objectively and explore other people's opinions before making a decision. Relational transparency denotes openness and honesty in presenting one's true self to others (Lamumbwa *et al.*, 2007), and occurs if leaders share their core feelings, motives, and inclinations with others (Kernis, 2003). We used the four component conceptualization as an analytical tool to evaluate whether the leadership intentions emerging upon the wilderness-based training program flag a transition toward authentic leadership.

Leadership development

Scholars argue that leadership is a set of behavioral skills which can be learned. Yet, experience shows that conventional leadership training strategies are not enough to transform individuals into leaders (Harung *et al.*, 2009). Reframing one's psychological boundaries, recognizing interdependences with other people, and discerning leadership purpose are key steps in leader development (Zheng and Muir, 2015). As these key steps require deep efforts, intra-personal transformation into a more authentic leadership style might be hard to achieve. Suggested strategies to foster change include leadership training

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programs (Baron and Parent, 2015; Eich, 2008), executive coaching, effective management feedback (Furnham, 2010) and building the capacity of self-reflection (Gardner *et al.*, 2005). Researchers assume that becoming an authentic leader would be possible for the majority of individuals using appropriate strategies (Baron and Parent, 2015; Cooper *et al.*, 2005; May *et al.*, 2003). However, empirical research into the effectiveness of transformation strategies is needed to substantiate this claim (Avolio, Walumbwa and Weber, 2009; Baron and Parent, 2015).

Management scholars emphasize that significant life events have the potential to promote authentic leadership development (e.g. Cooper *et al.*, 2005; Gardner *et al.*, 2005; Luthans and Avolio, 2003; May *et al.*, 2003), in line with the more general suggestion by psychologists that these events are catalysts for intra-personal transformation. Profound experiences, such as glorious sunsets, great works of art, intellectual epiphany, and the beauties of nature all evoke an intense response, constituting a significant life event (Shiota *et al.*, 2007). These events usually involve both emotion and cognition, and generally carry with them some important meaning and insight for the individual (McDonald *et al.*, 2009). The concept of peak experiences denotes the psychological counterpart of significant life events. Peak experiences are described as exciting, oceanic, deeply moving, exhilarating, and elevating experiences that generate an advanced form of perceiving reality, and that are even mystic and magical in their effect (Maslow, 1964). Studies demonstrated that people associate these experiences with a strengthening or positive shift of their mental dispositions toward themselves and their physical and social environment (Smith *et al.*, 2011; Boniface, 2000; Higgs and Rowland, 2010). In summary, peak experiences are positive, emotionally and cognitively intense, stand out, and have the potential to fuel lasting change in subjects. For these reasons, we paid special attention to the occurrence of peak experiences in our analysis of training program participants' experiences.

Effects of wilderness experiences

Significant events and peak experiences are not confined to specific settings. Yet, especially immersion in wilderness can induce high impact experiences, which are subsequently becoming significant life events in memory (Boniface, 2000; Csikszentmihalyi, 1990; Maslow, 1964; McDonald *et al.*, 2009). For example, Maslow (1964) argued that wilderness settings can evoke peak experiences. In similar vein, Csikszentmihalyi (1990) contended that nature can fuel flow experiences, in which a person performing an activity is fully immersed in a feeling of energized focus, full involvement, and enjoyment in the process of the activity. Both DeMares (2000) and Laski (1961) have specifically noted that wildlife interaction and observation can act as causal factors for peak experiences. Empirical research supports these claims (Ashley, 2007; Boniface, 2000; Hinds, 2011; McDonald *et al.*, 2009).

In addition, research indicates that spending time in nature can have profound psychological effects, including stress reduction (Ulrich *et al.*, 1991), attention restoration (Kaplan, 1995), emotional well-being (Hinds and Sparks, 2008; Hinds, 2011; Zelenski and Nisbet, 2012), personal development and increased self-awareness (Friese *et al.*, 1995; Heintzman, 2009; Kaplan and Kaplan, 2009; Paxton and Mcavoy, 2000), self-sufficiency, independence and self-regulation (Bratman *et al.*, 2012; Kaplan, 1995; Mayer *et al.*, 2008), creativity and inspiration, spirituality, greater authenticity and connectedness (Frederickson and Anderson, 1999; Howell *et al.*, 2011; Kaye, 2006), and increased intentions to pro-social behavior (Weinstein *et al.*, 2009; Morse, 2014). Many of these documented effects resonate well with the core components of authentic leadership.

Summary of argument and research questions

To conclude, the literature provides good reasons to expect that; immersion in wilderness can lead to significant life events through evoking peak experiences; wilderness experiences

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can constitute a variety of other positive psychological effects; these significant life events and subsequent peak experiences might catalyze intentions to change one's leadership style; and promote psychological traits that align with the core components of authentic leadership. The three research questions guided our research:

RQ1. Which peak experiences occurred during wilderness trails?

RQ2. Which behavioral intentions emerged?

RQ3. To what extent do these intentions resonate with the core components of authentic leadership?

Methods

Context

The present research was conducted amongst participants of the Wilderness Leadership Transformation Program of the Foundation for Natural Leadership (FNL), based in the Netherlands. This program consists of a four- to six-day wilderness trail with a group of five to seven participants, completed with one or two local guides and a certified FNL facilitator. Before the trail, an intake-conversation was held, aimed to address the participants' motivation, as well as a meeting aimed to get the participants to know each other and to provide practical information about the program. The design of the trail meets the conditions for participants to be fully immersed in nature. Participants go into wild, remote natural places without human made facilities, make hikes every day, take only a backpack with a sleeping bag and food. Trails are organized in remote wilderness places in Switzerland, Ireland, South Africa and Botswana. Besides camping, walking in silence, periods of solitude and sleeping under the stars, there is ample time for self-reflection, telling life stories, one-to-one conversations and sharing experiences while sitting in a circle.

After the trail, the individual participant and the facilitator evaluated the event and the commitments and intentions that emerged. Finally, after two months, trail participants met each other to share how those commitments and intentions were translated into practice. Participants included both female and male leaders, working in business, banking, and institutional and governmental settings.

Data

As part of the program, participants were instructed to describe what their experiences were, how the experiences had affected them, and what commitments and intentions, both in their professional and personal lives, had developed. Reports were written after the end of the trail, when memories were fresh, and submitted within two weeks of program participation. Participants were encouraged to make notes during the trail, to facilitate the report writing. Past participants since 2008 ($N = 189$) were asked to make these reports available for the present study, upon written consent of the facilitators and participants and guaranteed anonymous treatment of data. In total, 118 reports were collected, rendering a response rate of 62 percent. Of these 118 reports, 21 were excluded from the current analyses, because these reports did not meet the requirements; for instance, travel stories and not experiences and intentions were reported. Of the 97 reports, 33 reflected trails in Europe (The Alps and Ireland), and 64 in Africa (South Africa and Botswana).

Analysis

The aim of qualitative data analysis is to reduce the complexity of raw data into meaningful summaries on an abstract level, in response to the research questions posed. To do so, the

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process of qualitative data analysis involves formulating concepts that satisfactorily represent the content of texts (Hsieh and Shannon, 2005), and subsequently assigning codes (representing these concepts) to quotes (distinctive phases in the texts). The analysis consisted of seven phases.

First, each of the 97 trail reports was read and reread to fully comprehend the content and hence get a good sense of the raw data. Second, within the total set of trail reports, 1,646 distinctive phrases or excerpts were identified as expressing a discrete thought or idea. Third, each of these individual phrases was labeled with an initial open code, indicating the meaning of the phrase in terms of a summarizing abstract expression. As an example, the phrase "[…] more inner peace of mind, feeling more inner power" was coded as "insight in inner strength." Thus, a first codebook was developed on the basis of a bottom-up, data-driven interpretation. Fourth, the initial codebook was revised in several phases, by means of comparing initial codes and the underlying texts, considering combining or subdividing initial codes, and evaluating whether the revised codebook would adequately, meaningfully and efficiently reflect the variety of peak experiences and intentions of the participants. For example, the initial code of "insight in inner strength" was combined with closely related other initial codes into the broader code of "heightened sense of self." Fifth, the final codebook was used to code each of the 1,646 phrases that were previously distinguished (see Tables I and II for the final codes of peak experiences and intentions with example phrases). Sixth, the coded transcripts were analyzed to investigate how peak experiences might relate to intentions. The co-occurrence coefficient, also known as the Jaccard-index, was used as a measure of the strength of relationships. The c-coefficient is an equivalent of a correlation, yet specifically developed for qualitative data (Real and Vargas, 1996). It has a value between 0 and 1, and is calculated as the number of participants in which a given peak experience and given intention both occur, divided by the number of participants in which either one or both occur. We used this coefficient for a systematic evaluation of co-occurrence. Seventh, an inter-coder reliability test was conducted in which two researchers coded a sample of phrases independently. κ was used as the statistical estimate of agreement between coders. κ's were 0.82 for the peak experiences, and 0.84 for the intentions. The outcomes suggest "almost perfect" inter-coder reliability (in terms proposed by Landis and Koch, 1977). The qualitative data analysis program DeDoose.com was used for data analyses. As data analysis revealed no systematic differences in experiences and intentions between participants in African and European training locations, our results section reports on the whole group.

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Categories	Representative excerpts
Heightened sense of self	[…] I feel cleansed, reborn, quiet and incredibly strong […] […] This was one of the most powerful experiences I ever had, the rediscovering of my true nature […]
Awareness of one's core values	[…] I felt again my hidden convictions and values […] […] I realized the importance of using feeling as a compass, and then I feel peaceful and balanced […]
Deep connected attention	[…] really giving attention to the person, the thought, what it brings forward in all its senses, like in nature […] […] I was looking from within, I was connected […] and I realized how deeply I loved my family, which I am goanna tell them […]
Being in full presence	[…] feeling the stillness inside, feeling my energy, it makes my intuition stronger […] […] To float on the waves of the sea, board with the warm air flow, flow along with the river, trust your intuition, peace building, silence. Life in the here and now, enjoy the moment. Without prejudice. Then everything falls into place by itself […]

Table I.
Peak experiences

Intentions	Representative excerpts	AL components
Be more aware of self	[…] the trail made me rediscover who I really am which enables me to make unprejudiced choices […] […] By the trail I got to see who I am. Thereby I will make choices as to how I go live my life and work over the next few years and how I will contribute to the world around me […]	Self-awareness (a process of reaching a deeper understanding of one's strengths and weaknesses)
Live by inner compass	[…] follow my core values and do the things which give me energy; walk my own path; take the time to reflect and to change […] […] I want to be sincere and honest and how I practice this in private and business […]	Internalized moral behavior (a self-regularity process whereby leaders use their internal moral standards and values to guide their behavior rather than allow outside pressure to control them)
Improve careful listening	[…] increase and evoke stillness on a regular basis creates overview and insight, radiating peace of mind, peace of action […] […] Listen, listen and listen again to what is going on in people to be able to respond to this […]	Balanced processing (ability to analyze information objectively and explore other people's opinions before making a decision)
Become more transparent	[…] going to a deeper level with my team by sharing more personal things […] […] I will show more my emotions. Emotion gives strength. I have found, although it makes me vulnerable, but that vulnerability makes me what I am […]	Relational transparency (openness and honesty in presenting one's true self to others)

Table II.
Intentions and resonance with AL components

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Qualitative data analysis, more so than quantitative data analysis, is potentially susceptible to subjective decision making. Our attempts to avoid subjectivity in our analyses included the involvement of multiple researchers, a systematic and explicit procedure that was established prior to data analyses, concrete products of each analysis phase that can be consulted upon request (document with all reports, initial codebook, final codebook, coded reports), and the inter-coder reliability test.

Results

Peak experiences

Participants reported a stream of nature experiences: fascination for the beauty of nature (almost half of the participants), increased sensory awareness (vast majority), feeling one with nature (vast majority), and deep connection with self (nearly everyone). This flow of experiences culminated into meaningful associations evoked by nature as a model of thinking, producing metaphors, flashes of insight and inspirational ideas. For example, one participant expressed: "I saw two elephants rumbling through the water. A male elephant chased a female. For me this symbolized the driving up effect of the male making the female run away. My insight was that driving up does not connect and makes the other flee." Participants characterized many experiences with words like "intense, a sudden realization, deeply moving, powerful, enormous feeling, elevating, being reborn," flagging peak experiences. Four types of peak experiences were apparent: heightened sense of self, awareness of one's core values, a sense of deep connected attention, and being in full presence (Table I).

Heightened sense of self (reported by the majority) refers to better understanding of who one really is, and the increased feeling of reaching one's highest potential. Participants perceived themselves as being reborn and vital. By searching for, and eventually finding, the right words to articulate their feelings they realized a state of flow and could express their deepest feelings. Participants had rediscovered themselves and got a better sense of what they really wanted to get out of life.

The experience of being aware of one's core values was reported by half of the participants as the elevating realization of the importance to stick to their beliefs and values with full determination. Participants wrote that they had rediscovered their hidden convictions and values. They felt experiences of pleasure and balance when they felt connected to their inner compass.

Deep connected attention (reported by the majority) refers to participants' deeply moving feeling of the significance of careful observing and listening to nature and to the other. Participants reported that they experienced the power of attentive, compassionate listening to their peers. Also, they felt intensely how much they loved their families, realizing that they scarcely had told them. In addition, participants experienced the inner balance of sharp sensory awareness connected with a profound feeling like coming home. Participants felt as if nature had anchored itself in their minds, especially that "sacred place," where they had experienced their flashes of insight. Back home and in their workplace environment, on moments that matter, participants expected to instantaneously remember this place as a solid, peaceful and vibrant platform from which they could operate with peace of mind, connected to their inner self.

Finally, the peak experience of being in full presence (reported by more than half of the participants) refers to the insight of the importance of enjoying the "here-and-now;" thereby enjoying every step one takes in nature, associating it metaphorically with daily life. It also refers to the realization that one can trust feelings of inner knowing and intuition in the moment. Participants reported as well that, by being in the moment, they were able to embrace their fears and replace them by courage and alertness.

Intentions

Data analysis revealed four types of intentions: be more aware of self, live by the inner compass, improve careful listening, and become more transparent (Table II).

Being more ware of self (reported by the majority) implies the intentions to better understand who one really is, to realizing the importance of having an open mind, and to building in moments of reflection in their daily activities. Participants wanted to live and work more from their inner source, knowing their qualities and weaknesses. These intentions resonate with the component of self-awareness of authentic leadership, referring to a process of reaching a deeper understanding of one's strengths and weaknesses, and being cognizant of one's impact on other people.

Living by their inner compass (reported by the majority) reflects participants' intentions to stick to their vision and to be honest and sincere in business as well as in their personal and private context. They intended to follow their core values and take time to reflect on them. These intentions resonate well with the authentic leadership component of internalized moral behavior, describing the state that the leader is guided by internal moral standards and values.

Improving their capability of careful listening (reported by half of the participants) encompasses the intentions to give full-hearted attention to their employees and colleagues in their workplace environment as well as to their beloved ones in their private daily live. Participants intended to practice nonjudgmental listening and to increase and evoke quietness in themselves in order to create overview and insight. In addition, they wanted to become a servant leader through wanting to empower and develop their employees, expressing stewardship, humility, respect and authenticity. This intention resonates with the third component of authentic leadership: balanced processing, referring to the state that leaders objectively analyze all relevant data before making decisions, whilst soliciting views that challenge their deeply held positions.

Becoming more transparent (half of the participants) refers to the intentions to make conscious choices and decisions on the basis feelings of inner knowing and intuition, and

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clearly communicate those choices and decision. Participants indicated the will to reveal more personal aspects in their teams. They were willing to show their vulnerability, creating a much more open and sincere interaction. These intentions resonate with the fourth component of authentic leadership: relational transparency, referring to openness and honesty in presenting one's true self to others.

The co-occurrence matrix (Table III) indicates that there are no outstanding specific relationships between peak experiences and intentions. As an example, the first figure of 0.53 means that approximately half of the participants have both experienced a heightened sense of self and expressed the intention to be more aware of self. Overall, the pattern reveals that any type of peak experience relates substantially with any type of intention. This suggests that the relationship is rather holistic and transcending specific types. If participants had peak experiences, they were like to feel intentions that resonate with authentic leadership as well.

Discussion and conclusion

Our analysis revealed the emergence of four types of peak experiences: heightened sense of self, awareness of one's core values, deep connected attention, and being in full presence. The peak experiences were perceived as strong, deeply moving, and elevating, in accordance with Maslow's (1968) definition of peak experience. These peak experiences triggered behavioral intentions, resonating with the core components of authentic leadership (Avolio, Walumbwa and Weber, 2009; Avolio, Reichard, Hannah, Walumbwa and Chan, 2009). Thus, our study suggests that being immersed in nature can act as a significant life event that has the potential to foster authentic leadership.

The question of how to increase authentic leadership behavior is an important one for management science in order to contribute to solving societal problems, and the literature has identified the need to empirically address this question (Avolio and Mhatre, 2012). Longitudinal studies indicate that leaders can and do develop over time (Day, 2012). In their meta-analytic review of leadership impact research, Avolio, Reichard, Hannah, Walumbwa and Chan (2009) concluded that leadership interventions produced a 66 percent probability of achieving a positive outcome. However, Cooper *et al.* (2005) suggested that authentic leadership is not like other areas of leadership for which competency sets might be acquired in traditional training programs. More specifically, significant life events that trigger personal growth and development could be important components of authentic leadership development (Cooper *et al.*, 2005): the interaction of the trigger event and personal insight might produce behavioral change.

Our study corroborates the assertion that many individuals have the potential to become authentic leaders, provided that the skills identified for development and the techniques chosen to develop them are appropriate (Baron and Parent, 2015; Cooper *et al.*, 2005; May *et al.*, 2003). Moreover, our findings identify attributes of trigger events that are conducive to shifts toward authentic leadership. First, being immersed in a world – wilderness – that is very different from the daily world leaders live in.

Table III. Matrix of co-occurrence coefficients

	Intentions			
Peak experiences	Be more aware of self	Live by my inner compass	Improve careful listening	Become more transparent
Heightened sense of self	0.53	0.48	0.46	0.38
Awareness of one's core values	0.44	0.47	0.41	0.34
Deep connected attention	0.58	0.55	0.56	0.41
Being in full presence	0.47	0.38	0.47	0.47

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The different world does not contain reminders of daily hassles, and is at the same time a source of inspiration (cf. Kaplan and Kaplan, 2009). Second, coping with challenges for which knowledge and skills other than those important in daily life are needed. Being able to cope with those new challenges fosters self-empowerment and increases trust that other challenges, such as the challenge to change leadership behavior, can be dealt with as well (Paxton and Mcavoy, 2000; Quinn, 2005). Third, engaging with peer-to-peer conversations. Peers, more than instructors, can act as mirrors of the self, and interactions promote co-development of insights and reflection. In general, empirical research demonstrates peer learning to be an effective form of learning (Clark and Dumas, 2015), implemented by narratives processes and life-story telling such as in the present study (Shamir and Eilam, 2005; Sparrowe, 2005). The re-telling of life stories can enable leaders to reflect upon their values, emotion and to define anchor points from which their leader approach and identity develops and grows (Turner and Mavin, 2008).

In addition, our study extends the literature on the positive effects of nature experiences (Weinstein *et al.*, 2009) by suggesting that wilderness experiences can also nurture changes into leadership styles that are more beneficial to society at large. Our findings concur with psychological consequences of wilderness experiences, as revealed by Talbot and Kaplan (1986), such as nature capturing one's full attention, feeling connected with nature, a sense of coherence, perceiving deeper levels of understanding of oneself, and seeing life from a different perspective.

Our sample consists of leaders who have deliberately made the choice to invest in their personal growth and leadership development by participating on a wilderness trail; in other words, people characterized by developmental readiness (Hannah and Avolio, 2010). Hence, findings cannot blindly be generalized to all leaders. On the other hand, developmental ready leaders are the subset of leaders that is particularly relevant for studying change toward authentic leadership, as it is hard to imagine how leaders who are not willing to change can be moved toward becoming authentic leaders (George and Sims, 2007; Avolio *et al.*, 2010).

Another limitation of the present study is that actual changes in leadership style are not assessed. As a follow-up investigation, we are currently collecting data amongst new participants for a longitudinal study in line with scholarly summons for a greater focus on longitudinal research (Avolio and Mhatre, 2012). Authentic leadership is measured before participation, shortly after participation, and one-year participation, to examine whether the program indeed contributes to developing authentic leadership, and whether authentic leadership will last.

Finally, our study context reflects arguably an extreme form of transformation potential, with people being fully immersed in wilderness for days. Hence, the potential for change as detected here does not necessarily translate to other, less extreme transformation programs. Yet, the attributes of the transformation program that foster change as revealed here – being in another world, facing unfamiliar challenges, peer-to-peer learning – can probably be flexibly adopted and implemented in other leadership transformation programs as well.

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