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Satisfying psychological needs on the high seas: explaining increases self-esteem following an Adventure Education Programme

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ABSTRACT

A number of recent studies have revealed that taking part in a sail-training-based Adventure Education Programme elevates youths' self-esteem. Across two studies, we sought to examine the extent to which youths' sense of belonging contributed to this increase in self-esteem. Study 1 revealed that participants who completed the voyage showed an increase in self-esteem from the first to the last day of the voyage. Partial correlation revealed that group belonging made a unique contribution to this change. Study 2 replicated Study 1 and, further, demonstrated that the relationship between group belonging and self-esteem was not a function of self-efficacy or group esteem. Such findings suggest that an important contributing factor to the benefits of sail-training interventions is their potential to satisfy psychological needs, in this case the need to belong.

KEYWORDS

Self-esteem; sail training; Adventure Education Programme; Positive Youth Development; belonging

Today's adolescents are subject to a unique range of challenges (Lessof, Ross, Brind, Bell, & Newton, 2016; Nightingale & Fischhoff, 2001; Riordan, Flett, Hunter, Scarf, & Conner, 2015), and many of these challenges have the potential to undermine their self-esteem (Azmitia, 2002). This is problematic because self-esteem deficits during this critical stage of development can push adolescents towards a trajectory whereby they are more likely to experience depression, anxiety, poor physical health, unwanted pregnancy, relational difficulties, academic failure, unemployment and problems with the criminal justice system (DuBois, Burk-Braxton, & Tevendale, 2002; Orth, Robins, Widaman, & Conger, 2014; Trzesniewski et al., 2006). In the light of such findings, and given the fact that high self-esteem is associated with improved well-being, initiative and grit (Baumeister, Campbell, Krueger, & Vohs, 2003; Veselka, Schermer, Petrides, & Vernon, 2009), it is unsurprising that there have been many attempts to develop interventions that elevate self-esteem.

Unfortunately, perhaps in part due to the quality of studies available, meta-analyses and systematic reviews reveal that few interventions are successful in increasing self-esteem (DuBois et al., 2002; Elbaum & Vaughn, 2001; Hattie, 1992; O'Mara, Marsh, Craven, & Debus, 2006). A clear exception may be Adventure Education Programmes (AEPs) (Ewert, 1983; Hattie, Marsh, Neill, & Richards, 1997; Kelly & Baer, 1969; Marsh & Richards, 1988; Marsh, Richards, & Barnes, 1986a, 1986b). For example, in a meta-analysis comprising of 96 studies, Hattie et al. (1997) demonstrated that increased self-esteem was the most consistent benefit of taking part in an AEP and that the

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increase in self-esteem was markedly better than that demonstrated in comparable classroom-based programmes.

Sail-training interventions represent one of the more unique AEP experiences (Aguiar, 2001; Hamilton, 1988; Sharp, 1994). Typically conducted on large sailing vessels, these programmes challenge participants both mentally and physically (e.g. living in confined spaces, cooperating with strangers, climbing up tall masts and completing onboard duties regardless of tiredness, sea sickness or inclement weather), and there is a growing body of evidence demonstrating that these interventions confer a range of benefits. For example, sail training leads to improved goal setting in the long-term unemployed (Crane, Hattie, & Houghton, 1997) and increased engagement with education (Henstock, Barker, & Knijnik, 2013), aids in the recovery from addiction and substance abuse (White, Abraham, Smith, White, & Staiger, 2016), reduces prejudice (Kafka et al., 2016, 2011, 2012), fosters self-efficacy (Hunter et al., 2010), improves social confidence (McCulloch, McLaughlin, Allison, Edwards, & Tett, 2010), enhances resilience (Hayhurst, Hunter, Kafka, & Boyes, 2015; Scarf et al., 2017, 2016) and contributes to well-being (Fletcher & Prince, 2017) and the development of one's self-concept (Capurso & Borsci, 2013). The most consistently reported change, however, relates to increased self-esteem (Gordon & Harcourt-Smith, 1996; Grocott & Hunter, 2009; Hunter, Boyes, Maunsell, & O'Hare, 2002; Hunter et al., 2013; Kafka et al., 2011, 2012, 2016; Norris & Weinman, 1996).

Indeed, several studies have revealed that taking part in sail-training interventions can increase self-esteem. Moreover, these improvements have been demonstrated with respect to both global (Kafka et al., 2016; Norris & Weinman, 1996) and domain-specific self-esteem (Grocott & Hunter, 2009; Kafka et al., 2012) and persist for several months after the voyage (Grocott & Hunter, 2009; Hunter et al., 2013). Critically, this increase in self-esteem is not accompanied by the negative outcomes (e.g. increased prejudice) that have been linked to high self-esteem (Gerrard, Gibbons, Reis-Bergan, & Russell, 2000; Jordan, Spencer, & Zanna, 2005; Salmivalli, 2001). While the positive impact of sail-training interventions on self-esteem is clear, what are not clear are the mechanisms that drive this increase.

One promising mechanism is the group formed during the voyage (Ewert & McAvoy, 2000; Martin & Leberman, 2005; McAvoy, Mitten, Stringer, Steckart, & Sproles, 1996; Sibthorp & Jostad, 2014). Indeed, the group is a critical component of the larger social system that develops over the course of a voyage. For example, based on their review of the literature, Sibthorp and Jostad (2014) developed a Social Systems (SS) model of AEPs composed of eight major factors: (1) macro contextual factors (e.g. cultural beliefs, physical environment, etc.), (2) student factors (e.g. gender, ethnicity, etc.), (3) instructor factors (e.g. trustworthiness, patience, etc.), (4) goals (e.g. learning technical skills, gaining social skills, etc.), (5) group factors (e.g. group relationships, group norms, etc.), (6) group outcomes (e.g. group efficacy, sense of community, etc.), (7) group-dependent individual outcomes (e.g. communication skills, social competence, etc.) and (8) time (i.e. how programme duration influences the other components of the model).

Although listed as independent factors, the factors within the SS model are interdependent, where changes in one factor may cause changes in another and vice versa (Sibthorp & Jostad, 2014). In the current studies, we investigate the interaction between two components of the SS model. Specifically, we investigate the degree to which individuals sense of belonging to their voyage group (i.e. a group outcome) relates to the increases in self-esteem that commonly follow sail-training interventions (i.e. an individual outcome that may be group-dependent). We choose group belonging over other group outcomes such as identity (Jostad, Sibthorp, Pohja, & Gookin, 2015), community (O'Connell, Howard, & Lathrop, 2016) and cohesion (Breunig, O'Connell, Todd, Anderson, & Young, 2010), due to the rapidly growing literature demonstrating that higher levels of belonging are associated with subjective well-being (Cameron, 1999; Greenaway, Cruwys, Haslam, & Jetten, 2016; Sheldon & Bettencourt, 2002), reduced depressive symptoms (Cruwys, Haslam, Dingle, Haslam, & Jetten, 2014; Cruwys et al., 2014), psychological resilience (Scarf et al., 2016, 2017), reduced behavioural problems (Newman, Lohman, & Newman, 2007), positive life transitions (Iyer, Jetten, Tsivrikos, Postmes, & Haslam, 2009) and reduced mortality (Holt-Lunstad, Smith, &

Layton, 2010). Specifically, across two studies, we investigate the relationship between individual's sense of belonging to their voyage group and increased self-esteem following a 10-day developmental voyage on the Spirit of New Zealand, a 45-m three-masted barquentine that sails the coastal waters of New Zealand. We hypothesized that group belonging would predict increases in self-esteem (Study 1). Further, we hypothesized that this relationship would hold when controlling for other factors that have been associated with increases in self-esteem (Study 2).

Study 1

Participants

One hundred and seventy-three youth (72 males and 101 females), aged between 15 and 19 years of age, participated in the current study. One-hundred participants (52 males and 48 females) undertook a 10-day developmental voyage on the Spirit of New Zealand. The 30–40 participants on each voyage were drawn from different high schools around New Zealand and did not know one another prior to participating. The remaining 73 participants (20 males and 53 females) acted as a control group and did not undertake the voyage. Control participants were drawn from local high schools in the Otago and Southland regions of New Zealand and participated in normal class activities between assessments.

Design

The core design of the study was a mixed model. Condition (voyage vs. control) was a between participant's variable and the time of self-esteem measurement was a within participant's variable. Self-esteem was measured twice, the first day of the voyage (i.e. Time 1) and 10 days later on the final day of the voyage (i.e. Time 2). Control group participants also completed the self-esteem measure twice, 10 days apart. Group belonging was measured at Time 2 only.

Voyage

On the first day of the voyage, participants are assigned to their Watch Group. The Watch Group consists of approximately five males and five females and ensures that all participants belong to a group for the duration of the voyage (Sharp, 1994). Each day the Watch Groups complete a number of tasks that can only be completed by working together as a group and each night they discuss the activities they completed that day and how well they worked (or did not work) together.

Materials and procedure

All participants completed scales assessing self-esteem and group belonging. Self-esteem was measured using a variant of the Life Effectiveness self-concept sub-scale developed by Richards, Ellis, and Neill (2002). This sub-scale is made up of three items (e.g. *I am confident that I have the ability to succeed in anything I want to*, Cronbach's $\alpha = .72$) and was specifically devised to examine the impact of AEP interventions. Responses were scored using an 8-point Likert scale (8, definitely true to 1, definitely false), with positive scores reflecting higher self-esteem. Group belonging was assessed by means of Sheldon and Bettencourt's (2002) inclusion scale. This scale comprised three items (e.g. *To what extent do you feel included in this group*, Cronbach's $\alpha = .88$). Participants were instructed to respond on the basis of their membership in their Watch Group. Responses were scored using a 8-point Likert scale (1, not at all to 8, very much). Each scale was completed with respect to how participants felt 'right now'.

Results and discussion

Self-esteem

Preliminary analyses revealed no effects of gender and, as a result, gender was not included as a factor in any further analyses. A mixed-model analysis of variance (ANOVA) with Condition (2: Voyage and Control) as a between-participant factor and Time (2: Time 1 and Time 2) as a within-participant factor revealed a significant effect of Time, $F(1, 171) = 17.928$, $p < .001$, $\eta_p^2 = .095$, and Condition, $F(1, 171) = 8.227$, $p = .005$, $\eta_p^2 = .046$, qualified by a Time by Condition interaction, $F(1, 171) = 4.757$, $p = .031$, $\eta_p^2 = .027$. Follow-up paired *t*-tests revealed that voyage participants experienced an increase in self-esteem from Time 1 to Time 2, $t(99) = 5.143$, $p < .001$, while control participants did not, $t(72) = 1.283$, $p = .204$ (Figure 1).

Elevated self-esteem and belonging

Three voyage participants and one control participant failed to complete the group belonging measure and, therefore, were excluded from further analyses. An ANOVA revealed that voyage participants ($n = 97$, $M = 18.155$, SD = 2.977) reported higher levels of group belonging than did control participants ($n = 72$, $M = 14.486$, SD = 3.548), $F(1, 167) = 53.236$, $p < .001$, $\eta_p^2 = .242$. In order to assess the association between belonging and self-esteem for voyage participants, we conducted a series of Pearson's correlations. Each of the variables was positively related. Self-esteem at Time 2 was correlated with self-esteem at Time 1, $r = .614$, $p < .001$, and group belonging, $r = .333$, $p = .001$. Self-esteem at Time 1 was also related to group belonging, $r = .225$, $p = .026$. To assess this pattern of relations further, we conducted a partial correlation. This analysis revealed that the positive correlation found between group belonging and Time 2 self-esteem remained significant when we controlled for Time 1 self-esteem, $pr = .182$, $p = .018$.

Although promising, it is possible that rather than reflecting a relationship between group belonging and increased self-esteem, improvements in self-efficacy across the voyage are driving increases in self-esteem (Ewert, 1989; Hunter et al., 2013). Similarly, it may simply be that, rather than being their sense of belonging to their Watch Group, voyage participants' positive feelings about their Watch Group (i.e. group esteem) are driving the increases in self-esteem. In Study 2, we control for both self-efficacy and group esteem and demonstrate that voyage participants' sense of belonging to their Watch Group uniquely predicts increases in self-esteem over and above these other factors.

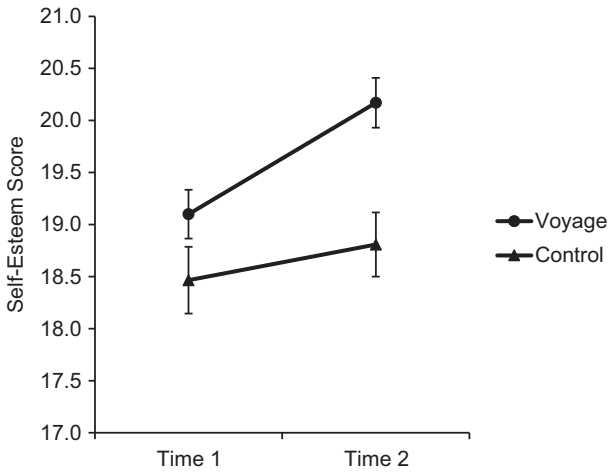

Figure 1. Self-esteem (scale ranged from 3 to 24) at Time 1 and Time 2 for both voyage and control participants in Study 1. Error bars represent ±1 standard error of the mean.

Study 2

Participants

One hundred and seventy-one youth (58 males and 113 females), aged between 15 and 19 years of age, participated in the current study. Eighty participants (33 males and 47 females) undertook a 10-day developmental voyage on the Spirit of New Zealand. Voyage participants were drawn from different high schools around New Zealand. The remaining 91 participants (25 males and 66 females) acted as a control group and did not undertake the voyage. Control participants were drawn from local high schools in the Otago and Southland regions of New Zealand and participated in normal class activities between assessments.

Design

The design of the study was identical to Study 1 with the exception that only voyage participants completed the group belonging measure at Time 2.

Materials and procedure

Identical to Study 1, self-esteem was measured twice (i.e. Time 1 and Time 2) and group belonging was only measured at Time 2. In addition, group esteem and self-efficacy were measured at Time 2. In contrast to Study 1, self-esteem was measured using a variant of the short form of the Self-Description Questionnaire III (SDQ III) (Kafka et al., 2012; Marsh & O'Neill, 1984). This change was made due to the fact that while the measure used in Study 1 is a reliable and valid measure of self-esteem, brief scales often lack the predictive utility of more comprehensive scales such as the SDQ III (Gosling, Rentfrow, & Swann, 2003). The SDQ III comprises of a single item assessing global self-esteem (i.e. *I don't have much respect for myself*) and seven items assessing the esteem in which specific self-images were held (e.g. religion: *Spiritual/religious beliefs make my life better and me a better person*; same-sex relations: *I make friends easily with members of the same sex*; emotional stability: *I worry a lot*; parental relations: *My parents understand me*; physical appearance: *'I dislike the way I look*; physical ability: *I am a good athlete*; Cronbach's α = .71). Responses were scored using an 8-point Likert scale (8, Definitely True to 1, Definitely False). Positive scores reflect higher self-esteem. Self-efficacy was assessed using the 10-item general self-efficacy scale devised by Schwarzer and Jerusalem (1995) (e.g. *I can deal with unexpected situations*, Cronbach's α = .95). Responses were scored on a 0–100 scale, with higher scores reflecting increased levels of certainty. Group belonging was assessed in the same manner as Study 1. Group esteem was assessed using a slightly modified version of the group esteem sub-scale developed by Ellemers, Kortekaas, and Ouwerkerk (1999) (*I feel good about my watch* Cronbach's α = .67). Responses were scored using a 7-point Likert scale (1, not at all to 7, very much). All scales were completed with respect to how participants felt 'right now'.

Results and discussion

Self-esteem

Preliminary analyses revealed no effects of gender and, as a result, gender was not included as a factor in any further analyses. Two outliers were identified whereby one person had an extremely low score at Time 1 (M = 18) and another person had an extremely low score at Time 2 (M = 24). Following Tabachnik and Fidell (2007), each value was transformed so that the value outside the mean value ±3 SD was equal to the next closest value (i.e. a value within 3 SD) + 1. A mixed model ANOVA with Condition (2: Voyage and Control) as a between-participant factor and Time (2: Time 1 and Time 2) as a within-participant factor revealed a significant effect of Time, $F(1, 169) = 12.132$,

p = .001, η_p^2 = .067, and Condition, $F(1, 169) = 4.910$, p = .028, η_p^2 = .028, qualified by a Time by Condition interaction, $F(1, 169) = 6.091$, p = .015, η_p^2 = .035. Follow-up paired t-tests revealed that voyage participants experienced an increase in self-esteem from Time 1 to Time 2, $t(79) = 4.808$, $p < .001$, while control participants did not, $t(90) = .665$, p = .508 (Figure 2).

Elevated self-esteem, self-efficacy, group belonging and group esteem

In order to assess the association between increased self-esteem at Time 2, group belonging and group esteem amongst voyage participants, we conducted a series of Pearson's correlations. Each of the variables was positively related (Table 1). Self-esteem at Time 2 was correlated with self-esteem at Time 1, r = .802, $p < .001$, self-efficacy, r = .337, p = .002; group belonging, r = .421, $p < .001$ and group esteem, r = .304, p = .006. Self-esteem at Time 1 was also related to self-efficacy, r = .408, $p < .001$, and group belonging, r = .294, p = .008, but not group esteem, r = .188, p = .096. To assess this pattern of relations further, we conducted three partial correlations. The first revealed that the positive correlation found between group belonging and Time 2 self-esteem remained significant when controlling for Time 1 self-esteem, self-efficacy and group esteem, pr = .301, p = .008. The second revealed that the positive correlation between group esteem and Time 2 self-esteem failed to remain significant when controlling for Time 1 self-esteem, self-efficacy and group belonging, pr = .110, p = .339. Finally, the third revealed that the positive correlation between self-efficacy and Time 2 self-esteem failed to remain significant when controlling for Time 1 self-esteem, group belonging and group esteem, pr = .173, p = .132.

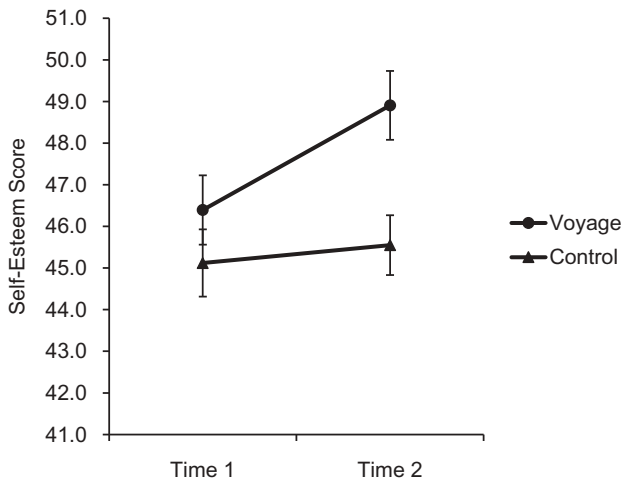

Figure 2. Self-esteem at Time 1 and Time 2 (scale ranged from 8 to 64) for both voyage and control participants in Study 2. Error bars represent ±1 standard error of the mean.

Table 1. Correlations between Time 1 self-esteem, Time 2 self-esteem, group belonging, group esteem and self-efficacy.

	1	2	3	4	5
1. Time 1 self-esteem		.802***	.294**	.188	.408***
2. Time 2 self-esteem			.421***	.304**	.337**
3. Time 2 group belonging				.422***	.599***
4. Time 2 group esteem					.100
5. Time 2 self-efficacy					

**$p < .01$, ***$p < .001$.

General discussion

The current studies investigated the relationship between group belonging and self-esteem following a 10-day sail-training intervention. Study 1 revealed that participants' sense of belonging to their Watch Group predicted increases in self-esteem following the 10-day voyage. Study 2 replicated this result and further revealed that the relationship between group belonging and self-esteem remained when controlling for self-efficacy and group esteem. These studies clearly demonstrate that voyage participant's sense of belonging to their Watch Group is a strong and unique predictor of increased self-esteem following a sail-training intervention.

A growing number of studies are demonstrating that an individual's sense of belonging has important implications for health, well-being and resilience (Begen & Turner-Cobb, 2015; Berry & Welsh, 2010; Cameron, 1999; Çelebi, Verkuyten, & Bagci, 2017; Cruwys et al., 2014; Greenaway et al., 2016; Scarf et al., 2017, 2016). Based on Baumeister and Leary's (1995) belonging hypothesis, one potential mechanism that may explain the importance of group belonging is that it is a psychological *need* that, when met, results in a range of positive outcomes (Greenaway et al., 2016; Maslow, 1968). Alternatively, and specific to self-esteem, the results of the current study are consistent with sociometer theory, which holds that self-esteem monitors our social environment for cues of belonging and acceptance (Leary & Downs, 1995). Indeed, given the voyage on the Spirit of New Zealand is built around being part of a Watch Group, completing tasks together and discussing the day's events, voyage participants' self-esteem is likely continually boosted by the constant cues that they not only belong to a group but are accepted by them. A final, although not mutually exclusive, possibility is that belonging to groups opens a number of pathways that lead to positive outcomes and meaning-making opportunities (DiFulvio, 2011; Haslam, Jetten, Postmes, & Haslam, 2009; Hogg, 2007; Leary, 2005). For example, Begen and Turner-Cobb (2015) demonstrated that enhancing belonging in a laboratory context resulted in adaptive physiological and psychological outcomes through self-esteem. That is, belonging led to increased self-esteem which, in turn, was a pathway to improved mood.

Limitations

There are four limitations that should be taken into consideration when interpreting Study 1 and Study 2. First, there may have been differences between voyage and control participants. That is, given voyage participants volunteered to take part in a voyage on the Spirit of New Zealand, while control participants volunteered to take part in a school-based study, there is the possibility these groups may have differed in personality or attitudes, two factors that were not measured in the current study. In addition, the gender distribution of groups was not perfectly matched and, although voyage and control participants were drawn from the same years in high school, we did not collect date of birth and it is possible that there were slight differences in the mean ages of each group. Second, in the absence of follow-up assessments, we cannot determine whether the relationship between group belonging and increased self-esteem is maintained long term. However, our previous work demonstrates that, at the very least, the increases in self-esteem are maintained long term (Hunter et al., 2013). Third, our data are based on self-report measures; future studies may look to include assessments by crew in order to validate the changes in voyage participants. Finally, the current studies are based on quantitative data and future studies may look to supplement this approach with qualitative data to provide a potentially more nuanced view of how the variables of interest in the current studies relate to one another.

Conclusion

With respect to the relevance of the current findings for AEPs, they clearly demonstrate that focusing on the development of groups (e.g. creating a sense of belonging and acceptance) may

be of comparable importance to focusing on personal development (e.g. increasing self-efficacy and self-confidence) that are the focus of many AEPs.

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Disclosure statement

No potential conflict of interest was reported by the authors.

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Ruth Thomson is a dietician working for Southern District Health Board. She conducts extensive work with diabetic youth and has a keen interest in sailing and positive youth development.

John A. Hunter is an associate professor in the Department of Psychology at the University of Otago, Dunedin. His research focuses on the theoretical and practical ramifications of group-based behaviour, with a focus on intergroup discrimination, health-related outcomes, motivation and socialization. He has authored a large number of papers and also has a black belt in jiu-jitsu.

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