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Effects of a five-day Outward Bound course on female students in Singapore.

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Abstract

It is commonly claimed that outdoor adventure programmes produce positive changes in participants by exposing them to adventure activities designed to encourage self-discovery and character building. Previous studies have focused on the impact of rehabilitative adventure therapy programmes and adventure education programmes for male dominated or co-ed environments, however little is known about girls' motivations for participating in adventure educational programmes and their associated outcomes. The purpose of this study was to examine the effectiveness of a five-day Outward Bound course among young, female secondary students in Singapore. A total of 149 female students aged from 13 to 16 years from a single cohort took part in the study. Results showed that the course had positive impacts on the participants' social skills, interpersonal skills, leadership, and self-esteem. The effect sizes ranged from .24 to .64, which were consistent with the moderate change of previous outdoor programmes effect size research (Hattie, Marsh, Neill, & Richards, 1997). In addition, intrinsic motivation positively predicted participants' satisfaction level after the course. Overall, this study showed that outdoor adventure programmes can have a positive impact on adolescent Singaporean girls.

Introduction

The success of the first Outward Bound adventure programme in 1941 led Kurt Hahn (1957) to support the establishment of Outward Bound schools in England. Since then, there has been a proliferation of adventure programmes, Outward Bound or otherwise, all over the world. The movement also saw the setting up of the Outward Board School, Singapore, in 1969.

In recent years, there has been a steady increase in the number of schools in Singapore incorporating adventure programmes, especially Outward Bound, as part of their students' school experience. Some schools include the programmes as part of the physical education curriculum; others subsume them under the leadership programme. This increase in demand of adventure programmes is driven in part by the Singaporean Ministry of Education's emphasis on character development and mental toughness in students. Generally, outdoor adventure programmes aim to produce positive changes in participants by exposing them to adventure activities designed to encourage self-discovery and character building. The changes may include self-esteem, social attitudes, leadership, problem-solving skills, team cohesion and behaviour (Cason & Gillis, 1994). Along the same line, Outward Bound programmes strive to utilise challenging experiences in outdoor settings to foster personal growth and responsibility. The activities presented in these programmes are designed to

encourage participants to discover their 'true' potential by overcoming their limitations and fears. Given the increase in adventure programmes as an integral and critical part of the students' educational experience, it is imperative that questions be asked about their effectiveness. In this view, research evaluation of the outcomes of outdoor adventure programmes is necessary to provide justification and accountability of the programmes offered.

Literature Review

In a major study which evaluated the impacts of outdoor adventure programmes, Conrad and Hedin (1982) found that adventure programmes had positive effects on a variety of outcomes and independent variables (N = 4000 adolescents). Specifically, they established that programme features (nature of experience, length, intensity, and reflective component) and student characteristics (age, grade point average, socio-economic status) jointly accounted for about 8% of the variance in social and psychological development. In addition, characteristics of the individual student (autonomy, collegial relationship with adults) accounted for 15 to 20% of the variance in the outcome measures. Although this study may be dated, it provides a useful insight. Characteristics of the individual student, such as motivation and influence of significant others, may play a critical role in his or her social and psychological development.

The overall picture painted by other large scale meta-analysis studies on adventure programmes appears to be equally promising. For instance, the meta-analysis conducted by Cason and Gillis (1994) on 43 outdoor programmes, based solely on adolescents, found that participants became more internal in their locus of control, had more positive self-concept and better academic achievement after the completion of adventure therapy programmes. Specifically, the average effect size was found to be .31, and that of self-concept was .34. An effect size (ES) of 0 means no change, with higher scores indicating greater amounts of change (Hedges & Olkin, 1985). An ES of .40 represents twice as much change as an ES of .20. The only programme effect that was identified as the moderating factor was length of programme. In general, longer programs had higher effects (.58) than medium (.19) and short (.17) programmes.

The meta-analysis conducted by Hattie, Marsh, Neill, and Richards (1997) with a total sample of 12,057 participants, also established strong support for the positive impact of outdoor adventure programmes on leadership, self-concept, academic achievement, personality and interpersonal relationship. The overall immediate effect size from the various adventure programmes was found to be .34. Amongst the outcome variables, the effect sizes of the leadership, self-concept and interpersonal domains were found to be .38, .28 and .32 respectively. For all programmes with school-aged students and all shorter programmes (less than 20 days), the mean effect was .26.

In another qualitative study, Witman (1993) examined the characteristics of adventure programmes that were valued by adolescents in treatment. It is interesting to note that group relationships, meaningful interaction with staff members and the perception of empowerment were seen as valuable programme components by participants, whereas task structure and relevance were seen as valuable programme components by panel experts. In essence, the expert panels' opinions on what constitutes critical valuable programme components were different from the participants' view. This important finding suggests that the impact of the programme must be derived from the participants' perspective and not just from experts' judgement.

In the Singaporean context, Ho (2003) examined the changes in 189 Primary 5 students (average age = 10.6 years old), using the Life Effectiveness Questionnaire (LEQ; Neill, Marsh, & Richards, 2003), on a typical three-day adventure-based residential outdoor education programme organised by the schools. The result established an effect size of .21, which was consistent with that reported by Hattie et al. (1997). It has to be noted that there was no significant

difference between the experimental and control groups in terms of their overall LEQ scores, probably due to the short duration of the programme.

More recently, Tan (2005) investigated the effects of a five-day Outward Bound Singapore programme on 800 Secondary 3 students (average age = 14.08 years old) from two independent schools. The LEQ was administered at four time periods: pre-, post-, and follow-up periods at three and nine months following the completion of the Outward Bound programme. Significant differences in the mean LEQ scores of participants were found over the four time periods. Not surprisingly, the greatest difference (ES = .49) was seen between pre- and post-test (immediately after the programme). In addition, the study also found that differences in overall LEQ scores were maintained over the three-month follow-up (ES = .36) and nine-month follow-up (ES = .34) test periods. These results suggest that the effects of the five-day Outward Bound Singapore programme can last beyond the initial 'post-programme euphoria' described by Marsh, Richards and Barnes (1986).

From the above literature review, there appears to be a general consensus that adventure programmes are beneficial for participants. Nonetheless, few studies have examined participants' motivation to take part in adventure programmes. In fact, in Hattie et al's (1997) meta-analysis of 96 studies, they noted that "in only one study were motivations for attending reported" (p. 72). In that study, however, most participants were volunteers so the findings cannot be generalised to participants who are encouraged to attend as part of school-related activities.

One of the few studies that looked at participants who attended as part of the school curriculum was conducted by Wang, Ang, Teo-Koh, and Kahlid (2004). The study used a self-determination theory (SDT) framework (Deci & Ryan, 1985, 1991) to examine the motivational predictors of 314 secondary school students in Singapore who took part in an Outward Bound course. SDT assumes that three psychological needs are essential for positive growth and a unified, coherent sense of self (Deci & Ryan, 1985, 1991). These three needs are the needs for competence, relatedness, and autonomy. The need for competence refers to the need for producing desired outcomes and to experience effectance. The need for relatedness is the need to feel that one can relate to others in a coherent way. The need for autonomy is defined as the need to feel ownership of one's behaviour. The extent to which these three needs are fulfilled influences the motivation of individuals. In SDT, motivation is proposed as a multidimensional concept forming a continuum ranging from high to low levels of self-determination and can broadly be categorized as intrinsic motivation and extrinsic motivation.

Intrinsic motivation represents the motivation when one is doing something for its own sake and not for external rewards, on the other side of the continuum, extrinsic motivation is doing something as a means to an end. There are at least three main types of extrinsic regulatory processes: external regulation, introjected regulation, and identified regulation (Deci & Ryan, 1985, 1991). External regulation is characterised by behaviour that is controlled by external forces, such as rewards or punishments. Introjected regulation is behaviour controlled by internal pressure to act, such as avoidance of guilt and shame. Identified regulation involves acting out because behaviour is seen as personally important. The findings showed that when the participants perceived their motivation to be externally regulated, it negatively predicted satisfaction in the course ($\beta = -.20, p < .001$). In contrast, when the motivation was intrinsic, it positively predicted self-reported satisfaction in the course ($\beta = .24, p < .001$). It has to be noted that the study did not examine the results for the two genders separately so it is not known whether the findings were similar for male and female students.

Witman (1993) revealed that females valued 'trust activities' within the adventure programme, whereas males valued those activities related to 'power and dominance'. Estes and Ewert (1988) suggested that because of the 'sex-role stereotypes', males and females may participate and react to programmes in different ways, resulting in different levels of self-efficacy. They also suggested that females typically look for spiritual development in adventure education programmes whereas males seek challenges and adventure. The differences in intrinsic-extrinsic motivation and gender differences are believed to affect participants' behaviours and ultimately programme outcomes. Therefore, it is important to examine the motives of why participants get involved in outdoor adventure programmes, and how different motivations may affect participants' evaluation of their experiences.

It is noteworthy that most of the reviewed studies had more male participants than female participants. For example, Hattie et al.'s (1997) total sample consisted of only 25% females. Although the review found that there were no overall gender differences in outcomes, there were some differences, however, between single-sex and mixed gender groups, with single-sex programmes having larger effect sizes. There is a need for more in-depth study to better understand the impact of adventure programmes on female students, as well as their motivation for participating in the programmes (Neill, 1997).

To address the issues mentioned earlier, this study aimed to examine the effectiveness of a five-day Outward Bound course for young, female secondary students in Singapore, as well as to investigate the predictors of participants' level of satisfaction after

the course. Specifically, aspects of self-perception, pro-social behaviour and leadership were included as the outcome variables. In terms of motivation, it was hypothesised that external regulation would negatively predict post-course satisfaction, and that intrinsic regulation would positively predict post-course satisfaction.

Method

Participants

Girls (N = 149) from one secondary school in Singapore took part in the study. The students were aged 13 to 16 years (M = 15.16, SD = 0.43) and were participants in a five-day outdoor discovery course conducted by Outward Bound Singapore. The programme was a compulsory component in the school physical education curriculum. The sample was likely to be representative of diverse socio-economic backgrounds although such data was not formally assessed.

Programme

The Outward Bound outdoor discovery course was designed for students aged 13 to 17 years. It was touted as a unique opportunity for students to experience the outdoors and explore their limits. The course focused on self-discovery and personal growth in a fun, supportive and challenging environment. Based on the principle of 'Success Builds Confidence,' the participants were challenged through a series of height, land and sea activities so that they could learn more about themselves and acquire new skills.

The primary objectives of the course were to: (a) establish and encourage teamwork among participants, (b) allow participants an opportunity to handle challenges within defined boundaries, (c) develop participants' respect for one another, and (d) build up participants' self-esteem and confidence (Outward Bound Singapore, 2003). It has to be acknowledged that frontloading with prescribed objectives has been questioned elsewhere. The argument is that each course participant comes with different experiences reflective of his or her stage in life and therefore gains different personal learning from the same experience (Martin, Leberman, & Neill, 2002).

Procedure

Participation in the study was voluntary. Participants were informed that there were no right or wrong answers, assured of the confidentiality of their responses, and encouraged to ask questions if necessary. No student refused to take part. The pre-questionnaire took 15 to 20 minutes and the post-

questionnaire took 10 to 15 minutes to complete. Informed consent and ethical procedures conformed to the guidelines of the British Psychological Society.

Administration of the questionnaires was done during the programme briefing and debriefing. The pre-programme briefing was conducted one week before the camp and the post-programme briefing was conducted immediately after the camp, during the debrief. Both briefings were conducted by the Outward Bound instructors.

Measures

Pre-questionnaire

Behavioural Assessment. Items from the Self-Report of Personality (SRP) of the Behaviour Assessment System for Children (BASC; Reynolds & Kamphaus, 1992) were selected and reworded to measure the selected personal qualities of the participants. The original SRP covers a wide range of personality factors for describing a child's behaviour. It contains 170 True/False items and is reported to have strong psychometric properties (Reynolds & Kamphaus, 1992). Its median of the alpha coefficient is reported to be .82 and its test-retest reliabilities range from .61 to .84. The original SRP was not used as some of the wordings were too difficult and non-specific to the local context (e.g., 'I attend after-school activities' and 'I am a self-starter'). Hence adapted scales were used instead. A total of twenty four items were used.

The adapted BASC has three main scales, including the *Leadership* scale (6 items, e.g., 'I will speak up if the situation calls for it' and 'I am usually chosen as a leader'), which measured skills associated with accompanying academic, social, or communication goals, particularly the ability to work well with others; *Social Skills* scale (9 items, e.g., 'I show interest in others' ideas' and 'I have a sense of humour'), which assessed skills necessary for interacting successfully with peers and adults in home, school, and community settings; and *Interpersonal Skills* scale (9 items, e.g., 'I congratulate others when good things happen to them' and 'I am good at making new friends'), which included skills to respond appropriately to the needs, feelings, and capabilities of different people in different situations. A seven point scale, ranging from 1 (Almost Never) to 7 (Almost Always) was used.

Self-Esteem. Rosenberg's (1965) Self-Esteem scale was used to measure the participants' self-esteem. This scale is the most widely used self-esteem measure in social science research. It has acceptable reliability and validity (Marsh, 1996). In general, studies have supported the single global self-esteem factor underlying responses to the scale (Gana, Alshphilippe, & Bailly, 2005; Wang, Siegal, Falck, & Carlson, 2001).

There are 10 items in this scale (e.g., 'I am able to do things as well as most other people'). The original four-point scale was modified to a seven-point scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree) to make it consistent with the other scales in this study.

Treatment Motivation Questionnaire (TMQ). The TMQ questionnaire was used to measure motivation for participation in the outdoor programme (Wang et al., 2004, originally designed by Ryan, Plant, & O'Malley, 1995). The TMQ questionnaire measured two major motivational regulations; external, which consisted of reasons imposed from outside, such as coerciveness (4 items, e.g., 'I don't really feel that I have a choice about going for the OBS course'), and internal factors, which included both introjected and identified items and reflected reasons that were more self-determined, but still extrinsically motivated (11 items, e.g., 'I really want to make some changes in my life' and 'I will feel guilty if I don't go for the OBS course'). The original TMQ was designed to study the motivation of alcoholics who had been mandated by the courts to attend a treatment programme (Ryan et al., 1995). Thus, the assumption was that no one would be intrinsically motivated to engage in such programmes. To capture the intrinsic motivation of the participants in the current study, a scale with three items was added to examine the intrinsic motivation for taking part in the programmes (e.g., 'I am going for the OBS course because I enjoy outdoor adventure'). A seven-point scale was used, ranging from 1 (Not True at all) to 7 (Very True). The alpha's coefficients were reported to range between .71 to .78 (Wang et al., 2004).

Post-questionnaire

The post-questionnaire was administered on the last day of the programme during the debrief. With the exception of the Treatment Motivation Questionnaire, all the other pre-measures were administered again. In addition, a nine-item Programme Satisfaction Survey was used to measure the participants' satisfaction with the outdoor education programme (Wang et al., 2004). Two sample items were, 'Overall, I am satisfied with the programme OBS has provided' and 'I will encourage my friends to take part in OBS courses'. A seven-point scale was also used ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). The internal consistency coefficient reported in Wang et al's study was high ($\alpha = .91$).

Data Analysis

Before the data analysis, all the subscales were tested for internal consistency using Cronbach's alphas. The descriptive statistics of the subscales used in the pre- and post-questionnaires were tabulated. To examine whether there were any differences between pre- and

post-course in the four main variables (Leadership, Interpersonal, Social, and Self-Esteem), paired t-tests were conducted. To determine the motivational predictors of the levels of self-reported Satisfaction for the girls after participating in the Outward Bound course, a stepwise multiple regression was conducted with mean Satisfaction score as the dependent variable and the three types of reasons for going for the course as the independent variables (Intrinsic, Internal, and External). To extend the analysis, a series of stepwise regressions were also carried out using the motivation variables as the independent variables and the changes in Leadership, Social and Interpersonal Skills, and Self-Esteem as the dependent variables.

Results

Descriptive Statistics

The means, standard deviations, and Cronbach's alpha coefficients (α) of the subscales used in the pre- and post-questionnaires for the overall sample are presented in Table 1. In general, the participants scored moderately high in Leadership, Social, and Interpersonal Skills on the seven-point scale (M ranged from 4.42 to 4.89), and they also had moderate levels of Self-Esteem before the course (M = 4.99). Students professed more intrinsic and internal reasons (M = 5.63, and M = 4.41, respectively) for attending the course than extrinsic reasons (M = 2.29). After attending the five-day course, the girls reported higher scores in Leadership, Interpersonal and Social Skills. They also had higher Self-Esteem scores. The participants were very satisfied with the programme (M = 6.11). The alpha coefficients for all the subscales were satisfactory, indicating that the subscales possessed internal reliabilities (see Table 1).

Table 1

The means, standard deviations, and Cronbach's alpha coefficients (α) of the subscales for the overall sample.

	α	Pre Mean	Pre SD	α	Post Mean	Post SD
Leadership	.84	4.42	.93	.81	4.80	.84
Social Skills	.86	4.89	.82	.86	5.24	.78
Interpersonal Skills	.89	4.83	.79	.89	5.35	.83
Self-Esteem	.85	4.99	.91	.85	5.20	.97
Internal	.85	4.41	1.05	---	---	---
External	.79	2.29	1.27	---	---	---
Intrinsic	.77	5.63	1.21	---	---	---
Satisfaction	---	---	---	.92	6.11	.83

The results of the paired t-tests showed significant differences between all the pre- and the post-variables (all ps < .001). Table 2 shows the results of the univariate tests and the effect sizes of the differences in the main variables measured pre- and post-course of the overall sample. The effect sizes ranged from .24 to .64 (Cohen's ds).

Table 2

Results of paired t- tests between pre- and post-variables.

Variable	df	t Value	p	ES
Leadership	145	6.99	<.001	.43
Interpersonal	145	10.77	<.001	.64
Social	145	7.58	<.001	.44
Self-Esteem	145	3.61	<.001	.24

Regression Analysis

The results of the stepwise multiple regression analysis revealed that Intrinsic Regulation emerged as the only significant predictor for Satisfaction in the course (F (1, 144) = 25.99, p < .001). It accounted for 15.3% of the total variance in self-reported Satisfaction ($R^2 = 15.3$, adjusted $R^2 = 14.7$, $\beta = .39$). External and Internal Regulations did not have any significant impact on Satisfaction ($\beta_{In} = -.038$, p = .69 for External, and $\beta_{In} = .065$, p = .51 for Internal).

In subsequent regressions involving the motivation variables and the changes in Leadership, Social and Interpersonal Skills, and Self-Esteem, it was found that changes in Leadership Skills were significantly predicted by Internal motivation, (F (1, 144) = 10.80, p < .001), although this only contributed to 7% of the variance ($\beta = -.26$). Change in Social Skills was also predicted by Internal motivation (F (1, 144) = 4.86, p < .05). In this case, it accounted for only 3.3% of the variance ($\beta = -.18$). However, no significant predictor was established for changes in Interpersonal Skills and Self-Esteem. Another series of regressions with post measures as dependent variables and the pre-measures as covariates were conducted and similar results were obtained.

Discussion

This study sought to examine the effectiveness of a five-day Outward Bound course for young, female secondary students in Singapore, as well as the motivational predictors of their level of satisfaction after the course. The results showed that after attending the five-day course, there were statistically significant

increases in all the variables measured, including moderate to large changes for Leadership (ES = .43), Interpersonal (ES = .64), Social skills (ES = .44), and a small to moderate change for Self-Esteem (ES = .24). The findings are not unexpected since many Outward Bound adventure courses have explicitly claimed to improve teamwork, communication and leadership skills of participants (Hattie et al., 1997).

Larson (2000) suggests that classic sociological theory could provide explanation of the processes of social integration into a group. As individuals join group activities, it will lead to individuals' assimilation of the group's norms and internalisation of the group identity. Therefore, increases in social, interpersonal, leadership skills and self-esteem could be due to the processes of social integration in the outdoor context (Ringer, 2002).

Overall, the current results are consistent with those reported by earlier studies. For example, Hattie et al. (1997) found that the overall immediate effect size for the various programmes was .34. Amongst the outcomes variables, the effect sizes of Leadership, Self-concept, Interpersonal were found to be .38, .28 and .32 respectively. Likewise, Cason and Gillis (1994) established an average effect size of .31 in their meta-analysis based solely on adolescents. Specifically, the effect size of Self-Concept was found to be .34. It is interesting to note that Cason and Gillis found that the only programme effect that was identified as the moderating factor was the length of programme, that is, longer programmes had higher effects (.58) than medium (.19) and short (.17) programmes. Considering that the adventure programme in the current study was only a five day course, it is noteworthy that the effects, with the exception of Self-esteem, were in the region of .4 to .6. The results are encouraging and they suggest that the five-day Outward Bound Singapore course is as effective, in terms of immediate effects, as longer courses reviewed in earlier studies on students' leadership, interpersonal and social skills.

Taken together with previous studies conducted in Singapore (Ho, 2003; Tan 2005; Wang et al., 2004), the present findings affirm that outdoor education programmes in Singapore have positive and moderate immediate impact on participants' social and emotional skills. The findings are significant in view of the fact that 'typical' effects of educational interventions, identified from a synthesis of over 300 meta-analyses (Hattie, 1987, 1992, 1993) is .28 for affective outcomes. Thus, the Leadership, Interpersonal and Social Skills effect sizes from the current adventure programme compare favourably against those of typical educational interventions. The effect size of .24 on Self-Esteem is comparable to the effect size of .19 typically found in classroom-based programmes on self-concept (Hattie, 1987, 1992, 1993).

Among the four main variables measured, the results of the present study showed that the increase in Interpersonal Skills was the largest (ES = .64). Although the effect for Social Skills was slightly lower, it was still quite substantial (ES = .44). The current effect sizes are impressive considering that Hattie et al.'s (1997) meta-analytic findings established an average effect size of .32 for the overall interpersonal dimension, .13 for interpersonal communication and .26 for relating skills. The current finding is not totally surprising considering that females may have a higher level of expectation of group development within their Outward Bound groups and a higher level of group development after the experience when compared to males (Estes & Ewert, 1988).

In terms of motivational predictors, the results of this study have shown that intrinsic regulation was the only significant predictor for satisfaction in the course. The result only partially supported our hypothesis that external regulation would negatively predict post-course satisfaction, whilst intrinsic regulation would positively predict post-course satisfaction. In a previous study, extrinsic regulation predicted satisfaction negatively for a comparable sample of boys and girls (Wang et al., 2004). The reason for the discrepancy in findings is not apparent but it suggests that the predictors of participants' level of satisfaction may be moderated by the participants' gender. In essence, the result shows that for female students, the level of perceived course satisfaction is contingent only on intrinsic motivation.

Specifically, the present study established that intrinsic motivation contributed up to 15.3% of the total variance in self-reported satisfaction. Although the variance may seem small, it is a unique variance contributing to the level of satisfaction. It has to be cautioned, however, that no similar study has been conducted in other countries or with different age groups, so it is not known whether the findings can be generalised. More extensive studies need to be carried out to get a clearer picture.

According to self-determination theory, intrinsic motivation is thought to exist when an individual chooses to engage in an activity for its own sake, whether for interest, curiosity, or for pure enjoyment of the experience (Deci & Ryan, 1985, 1991). It is facilitated in social-contextual events that satisfy or support individuals' feelings of relatedness, competence and autonomy (Deci & Ryan, 1985, 1991). As such, if we want the satisfaction level of female students to be high, outdoor education programmes have to be presented to them in an interesting, fun and exciting manner. In this view, course coordinators need to put in more thought in the design of their adventure courses to interest and challenge their female participants, and to satisfy their needs for relatedness, competence and autonomy.

Finally, it will be recalled that internal motivation was a significant predictor of change in participants' leadership skills and social skills. The variances accounted for were 7% and 3.3% respectively. The findings are intriguing, and they showed that intrinsic motivation had a role to play in terms of predicting female participant's improvement in leadership and social skills. Although purely speculative, it seems tenable that participants who had more introjected or identified regulations may have higher levels of improvement because they really wanted to make some changes in their life and they saw the value and importance of the course.

Conclusion

The most important finding of the study is that the five-day adventure course had positive impacts on the social skills, interpersonal skills, leadership, and self-esteem of its' female participants. The results provided justification for the course, especially since the documented effects were as high, if not higher, than those established for typical educational interventions. It is noteworthy that the effect sizes of this short five-day course compare favourably with those documented in large scale meta-analysis such as Hattie et al. (1997), in which 90% of the studies had adventure programmes lasting for more than nine days.

One of the limitations of this current study is that the results were based only on immediate programme effects. There is a concern that participants typically experience good feelings or elation at the end of a course, and such 'post-group euphoria' may affect the effect sizes especially when the measures are via self-report (Marsh et al., 1986). To have a more comprehensive picture, future studies should administer follow-up questionnaires one to three months from the end of course to determine the follow-up effects of the course.

Another limitation of the study is that the approach was purely quantitative. A mixed method approach, combining quantitative and qualitative data collection, would help to triangulate the data and offer stronger interpretation (Barrett & Greenaway 1995; Dahlgren and Szczepanski, 1998; McKenzie, 2003; Martin & Leberman, 2005). One of the challenges in utilising a qualitative approach would be the time involved to collect and analyse the data and this is a perennial challenge that all researchers face. However, the integration of data from the questionnaires with data from interviews would provide a much better picture of how the course components had affected the participants.

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