

Promoting Social Skills through Outdoor Education and Assessing Its' Effects

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Abstract

Outdoor education is a holistic form of education which aids in overall wellbeing of adolescence, including academic, physical, emotional, social and psychology well being. The aim of this study was to see whether outdoor education promotes social skills and assess its effects on participants. Research sample comprised of 671 adolescence attending a five-day residential outdoor education program. Kolb's Cycle of Learning through Experience is used as the theoretical framework while the research framework is adapted from Carver's Outdoor Education Framework. Social skills measured are cooperative teamwork, leadership ability, and ability to cope with changes. Descriptive and inferential statistics used were t-test, Cohen's D, multiple analysis of variance, and post hoc test. The result showed that the outdoor programme had a significant influence for all the constructs involved in this study. Cohen's D showed that the treatment contributes greatly to leadership ability (60%), and ability to cope with changes (61%). Wilks' Lambda in multiple analysis of variance showed that the outdoor education module contributes significantly high $F=30.78$, $p<0.05$; $\eta^2= 0.57$ to changes in social skills. Analysis of variance showed that there is a retention period whereby the changes in social skills examined remain in the participants for a certain period of time. This retention of changes in social skills is significant for all factors studied which are cooperative teamwork, leadership ability, and ability to cope with changes.

Keywords: social skills, outdoor education, teamwork, leadership

1. Introduction

Outdoor education is a holistic form of education which aids in overall wellbeing of adolescence, including academic, physical, emotional, social and psychology well being (Gray & Perusco, 1993; Marsh & Richards, 1988; Davidson, 2001; Hattie, 1997). It provides opportunities for students to apply knowledge and skills to master, especially in real-life situations and increase the level of understanding of the relationship between humans and the environment (Lugg, 1999). Outdoor education program implemented in the school curriculum claims to be very valuable to help the teaching and learning process of formal education in the classroom (Henderson & Barnett, 2001).

The core of the National Education Policy (NEP) of Malaysia aims to produce a balanced and virtuous generation in terms of physical, emotional, spiritual, intellectual and social well being. The NEP is also geared to meet and realize one of the nine branches of Vision 2020 of creating a caring society and culture. This philosophy also aims to produce Malaysian citizens who are knowledgeable, competent, honorable, responsible and capable of achieving total well-being. Therefore the implementation of a balanced education curriculum should be integrated with the integration of skills, knowledge, values and practices.

Physical Education and Health conducted in secondary schools in Malaysia currently have emphasized the outdoor education program as part of the learning unit to be mastered by all students. However, the implementation of this program is slow and not given priority in the school curriculum. Vasudevan (1989) states that outdoor education is a method that emphasizes learning experience to develop knowledge and provide a medium for socialization process. Outdoor education can enrich the lives of individuals in terms of exposure and experience. Outdoor education uses the natural environment to promote learning and emphasizes real experience to develop and enhance experience in the classroom.

Gass (1995) states that outdoor education helps students learn skills that lead to awareness of thoughts and

emotions. Group training activities as part of outdoor education is important. In this activity students have time to experience the emotional changes that occurs during the activities. Outdoor education involves cooperative learning that emphasizes the interaction between teachers, students and learning experience. In this learning experience students learn from the behavior or action. Learning involves a process of value change, moods, skills and knowledge acquired by the student through the activities (Boss, 1999).

The scope of outdoor education consists of a program of activities planned and prepared with care by personnel and teachers who use the environment, nature and direct experience in the teaching and learning process. It involves the process of learning by doing. All disciplines, knowledge and experience will be obtained directly with the concept of 'hands on' or 'first hand experience'. All curriculum content can be enriched and developed through experience gained through these activities. Because the learning process centered on the direct experience, learning gained by participants are faster and more effective. Accordingly, the influence of knowledge and experience can be preserved longer. Dewey (1938) stated that experience is very important in order to develop the knowledge and to enrich the process of socialization. Understanding and appreciation of a concept is more effective when learned through direct experience and behavior.

Based on the NEP, the school as an institution is able to produce a balanced and comprehensive individual physically, emotionally, spiritually and intellectually. But what is available today over the education system focuses mainly on academic aspects. Ability and intelligence of an individual is only measured by academic excellence. The education system is now more focused on academic achievement and marginalize the activities of co-curricular and non- examination subjects. This action resulted in a stressful learning environment, or school environment which is somewhat isolated from the community, hence giving rise to group polarization and comprehensive development of the character and personality of the students to be less than satisfactory. However, the academic community is now beginning to realize that participation in extra-curricular activities and outdoor education do help students to improve thinking skills.

Outdoor education is a medium that can be used in assisting student discipline. To avoid the problem of student discipline, the Emotional Quotient (EQ) must be nourished as part of the Intelligence Quotient (IQ) (Goleman, 1995). Emotional Quotient (EQ) cannot be fully developed through extracurricular activities, but it can be developed through co-curricular and outdoor education activities such as camping ,involvement in associations, sports and games. These activities cover various fields of knowledge and experience. This method directly or indirectly conforms students personality, not only are they willing to face the challenges of schooling but are more ready to deal with the twists and turns of life afterwards.

Outdoor education that is rich in components of IQ and EQ are in line with the NEP aims of developing a wholesome individuals. Outdoor education comes complete with a variety of disciplines and field studies which are central to the development of knowledge through real life experience (McRae, 1990). Besides it is also a process of socialization that occurs among members during outdoor education activities sessions. Educational psychologist, Gardner (1991) stated that the increase in knowledge depends heavily on environmental education. Compared with in -class learning, outdoor education students use the entire environment as a source of knowledge. This knowledge is obtained directly from the environment.

Outdoor education learning through experience is based on the belief that the process of self- development is a result of direct experience (Dewey, 1938; Rogers, 1985; Burnard, 1991; Gass, 1993). Direct experience is an active process (King, 1988) and involve students / participants who are in a foreign environment and uncertainties, as well as outside of their 'safe' zone (Gass, 1993). This uncertainty requires problem solving skills, research and reflection (Kraft & Sakofs, 1991). Krafts and Sakofs (1991) asserts that learning through experience must be realistic, meaningful and assisted by an enabling environment. Individual experience is very important in the learning process and the acquisition of knowledge through outdoor education.

Kolb (1984) also stated that emphasis should be given to adapt and learn about an issue and not just focus on the contents and products. Learning through experience is a mix between experience, perception, cognition, and behavior (Kolb, 1984) and seeks to generate the emotional, physical and mental imagination (Hopkins & Putnam, 1993). This holistic approach is supported by Andersen (1995). They believe that the involvement of a person as a whole (physical, intellectual and emotional development involves feelings), past experience and reflection on experience can be applied in outdoor education. They also noted that the structure of an experience, process facilitation, and evaluation of its products are key factors in learning through outdoor education activities. Wagner and Roland (1992) also states that appropriate facilitation is a key factor in the success of a program that is based on experience, but so not many empirical studies has been conducted on this assumption.

This research seeks to answer the issue of whether the outdoor education program and the sequence of activities

in an outdoor education program promotes social skills of its participants. If it does, this research also seeks to answer whether the changes remains for certain a period of time.

2. Methodology

This descriptive study using a quasi-experimental design to answer the research question of the effects outdoor education has on social skills. Data for this study was collected through a questionnaire. In this study, the change in social skills is the dependent variable and the sequence of activity is the independent variables. The study sample consisted of 671 adolescents. Sampling method used was cluster sampling where the researcher has identified a target group to be studied. The samples have been exposed to the outdoor education program through the different modules to see the effectiveness of programs. The difference between these modules is the sequence in terms of activities conducted for the program.

3. Results

The sample consists of 671 adolescents in Malaysia which is divided into four treatment groups and one control group. Summary of demographic factors in this study are shown in Table 1. A total of 590 participants (87.9%) received exposure to outdoor education programs and is in the experimental group. While 81 participants (12.1%) who did not receive exposure to outdoor education program is the control group. Experimental subjects were divided into 4 groups randomly. They received treatment in the form of different sequence of outdoor education activities. Group 1 were exposed to low risk outdoor education activities with a sample of 175 (29.7%). Group 2 were exposed to low- to high risk outdoor education activities totals to 148 participants (25.0%). Group 3 were exposed to a mixture of outdoor education activities which do not have an orderly arrangement total to 135 participants (22.9%), and Group 4 were exposed to outdoor education activities ranging from high-risk and followed by low risk activities with a total of 132 participants (22.4%).

Table 1. Demography of respondents

Demographical Factors		N	%
Exposure	Experimental	590	87.9
	Control	81	12.1
Types of Activities	All low risk activities	175	26.1
	Low- to high-risk activities	148	22.1
	Mixed risks activities	135	20.1
	High- to low-risk activities	132	19.7
	No activities	81	12.1

The t test analysis was conducted to see the comparison between the control and treatment groups. Table 2 shows the results of analysis where there is a significant difference, $[t(669) = 72.84, p < 0.05]$, between the treatment groups and the control group. This show that there is a change in the social skills constructs studied after participants were exposed to the outdoor education program. This means that outdoor education programs have a significant impact on individual social skills.

Table 2. Comparison between treatment and control group

Group	n	Pre-test	Post-test	df	t
Treatment	590	121.40 (19.53)	280.65 (22.91)		
Control	81	129.64 (8.77)	122.38 (9.58)	669	72.84*

$p < 0.05$

Since there is a significant effect on the individual's social skills after experiencing the outdoor education program, researchers did further analysis to see which constructs of the social skills that change and the

contribution of the constructs on the change in social skills. Table 3 shows the t-test analysis for each component in social skills constructs studied.

Table 3. T-test analysis for the changes in constructs as a result of exposure to outdoor activities program

Constructs	Group	Pre-test	Post-test	df	t	Cohen's d
Cooperative teamwork	Treatment	10.38 (5.23)	20.42 (2.36)	669	24.71*	0.34
	Control	12.01 (3.04)	10.52 (1.96)			
Leadership ability	Treatment	6.93 (2.37)	19.24 (7.33)	669	42.79*	0.60
	Control	7.80 (1.58)	7.33 (1.69)			
Coping with changes	Treatment	7.08 (2.28)	19.56 (2.26)	669	43.67*	0.61
	Control	7.35 (1.61)	7.30 (1.84)			

* $p < 0.05$

The t test conducted between the experimental group and the control group showed a significant effect on all components of social skills constructs studied. The results showed a significant difference for cooperative teamwork [$t(669) = 24.71, p < 0.05$], leadership ability [$t(669) = 42.79, p < 0.05$], as well as the ability to cope with changes [$t(669) = 43.67, p < 0.05$].

Current research developments also discussed the influence of the effect sizes which indicates the contribution of variables to changes in the study. Given the changes in individual social skills as a result of exposure to outdoor education programs, researchers analyse the effect size to see how outdoor education contributed to the changes. Cohen's d analysis specifies that a value of 0 indicates that there is no difference in the mean, while the value of 0.1 - 0.2 is considered to be small, the value of 0.3 - 0.5 is considered as moderate and above the value of 0.6 indicates a large effect size. Referring to Table 3, the outdoor education program contributes moderately (34 %) to cooperative teamwork. While exposure to outdoor education programs contribute significantly to leadership ability (60 %), and ability to cope with changes (61 %).

The next inferential analysis was conducted to see whether the sequence of activities in outdoor education program modules may affect the individual's social skills. To test this hypothesis, researchers use mean gain score and analysed it using MANOVA. For this analysis, the four variables are the outdoor education program modules. Refer to Table 1 for a description of the sequence of activities for the outdoor education program.

MANOVA tests were performed to assess the relationship between changes in social skills according to constructs studied. If the MANOVA test and Levene homogeneity test found a significant difference between the treatment groups studied, the researchers perform the Bonferroni post hoc test. Researchers also interpret the contribution of outdoor education program modules based on the sequence of activities for variance in attitudes using eta square (η^2). An η^2 value of 0.01 indicates a small effect size or a small contribution, an η^2 value of 0.06 shows a moderate effect size or contribution and an η^2 value of 0.14 shows a large effect size or contribution.

Table 4 shows the results of MANOVA analyses. Wilks' Lambda shows the sequence of outdoor education activities has a significant effect [$F(4,666) = 363.57, p < 0.05$] in changes to the social skills of participants. η^2 value for Wilks Lambda was 0.69 shows the sequence of outdoor education activities contribute significantly to the changes.

Table 4. MANOVA for the effects of the outdoor education modules on changes in social skills

Group	n	Pre-test	Post-test	Mean gain	F	df	η^2	Levene
1	175	126.79 (18.50)	283.43 (22.43)	156.63 (22.17)	1340.25*	4, 666	0.89	5.93*
2	148	120.24 (18.75)	278.14 (22.90)	157.90 (17.63)				
3	135	121.35 (18.58)	282.21 (24.48)	160.87 (21.85)				
4	132	115.62 (20.93)	278.20 (21.55)	162.58 (16.76)				
5	81	129.64 (8.77)	122.38 (9.58)	-7.26 (13.10)				

Wilks' $\Lambda = 363.57$, $p < 0.05$, $\eta^2 = 0.69$

Since the analysis conducted showed a significant effect, researchers have extended the analysis to see which modules has the most effect on the changes in social skills. Table 5 shows the Bonferroni post hoc analysis conducted. Bonferroni post hoc analysis found that the overall attitude change is significant for participants who pursue outdoor education modules compared to students who do not participate in outdoor education programs.

Table 5. Bonferroni post hoc analysis for the effect of the modules on changes in social skills

Module	1	2	3	4	5
1	-	NS	NS	NS	163.89*
2		-	NS	NS	165.17*
3			-	NS	168.13*
4				-	169.84*
5					-

Researchers also conducted MANOVA analysis for each construct to see its effect on the changes in social skills. Table 6 shows the MANOVA analysis for each constructs studied.

Table 6. MANOVA to see effect of construct based on sequence of activities on changes in social skills

Construct	Module	Pre-test	Post-test	Mean score	gain	df	F	η^2	Levene's test
Cooperative teamwork	1	15.39 (6.56)	20.50 (2.39)	5.12 (6.90)		4 666	224.46*	0.57	32.45*
	2	8.07 (2.53)	19.96 (2.48)	11.88 (2.51)					
	3	8.76 (2.23)	20.81 (2.17)	12.05 (2.38)					
	4	7.95 (2.30)	20.41 (2.30)	12.45 (1.87)					
	5	12.01 (3.04)	10.52 (1.96)	-1.49 (3.72)					
Leadership ability	1	7.07 (2.21)	19.43 (2.22)	12.35 (2.81)		4 666	391.68*	0.70	0.08
	2	7.28 (2.46)	19.16 (2.56)	11.88 (2.75)					
	3	6.85 (2.31)	19.47 (2.44)	12.61 (2.79)					
	4	6.42 (2.46)	18.86 (2.22)	12.45 (2.68)					
	5	7.80 (1.58)	7.33 (1.68)	-0.47 (2.49)					
Ability to cope with changes	1	7.05 (2.21)	19.86 (2.21)	12.82 (2.70)		4 666	440.84*	0.73	0.96
	2	7.45 (2.37)	19.38 (2.28)	11.93 (2.46)					
	3	7.01 (2.14)	19.54 (2.37)	12.53 (2.57)					
	4	6.78 (2.38)	19.39 (2.16)	12.61 (2.39)					
	5	7.35 (1.61)	7.29 (1.84)	-0.05 (2.40)					

Wilks' $\Lambda = 30.78$, $\eta^2 = 0.57$, $p < 0.05$

Data analysis showed a significant effect for the sequence of activities in outdoor education program for all constructs studied. Analysis found that the sequence of activities that has a significantly affect are cooperative teamwork [F (4,666) = 224.46, $p < 0.05$; $\eta^2 = 57\%$], leadership ability [F (4, 666) = 391.68, $p < 0.05$; $\eta^2 = 70\%$], and the ability to cope with changes [F (4, 666) = 440.84, $p < 0.05$; $\eta^2 = 73\%$].

Further inferential analysis is performed to answer the question of whether changes in social skills as a result of exposure to outdoor education program remains in the individual. MANOVA analysis results performed are shown in Table 7. Analysis showed that there was retention of a significant change in social skills for all constructs. The constructs that showed a retention of 98% is cooperative teamwork [F (1, 123) = 5963.49, $p < 0.05$], while constructs that showed retention of 97% change in the attitude is leadership ability [F (1, 123) = 3622.77, $p < 0.05$], and the ability to cope changes [F (1, 123) = 3787.39, $p < 0.05$].

Table 7. Retention of changes

Construct	Post test	Post-post test	df	F	η^2
Cooperative teamwork	6.90 (0.79)	6.51 (0.94)	1, 123	5963.49*	0.98
Leadership ability	6.41 (0.79)	5.65 (1.04)	1, 123	3622.77*	.097
Ability to cope with changes	6.55 (0.83)	5.79 (1.05)	1, 123	3787.39*	0.97

4. Conclusion

The findings of this study indicate that exposure to outdoor education activities have a significant impact on subjects' social skills. This is in line with research done by Stenger (2001) which found that there was a significant change in personality after participants underwent an outdoor education program. This finding is also strengthened with Cohen's *d* analysis showing that all the constructs studied contributed to changes in social skills. Constructs that contribute significantly to change is leadership ability, and ability to cope with change. This finding supports the findings of previous studies by Hattie, et al (1997) which states that outdoor education programs have a positive impact on the aspects of leadership, academic, personality and interpersonal relationships. They also found that these changes are more permanent than other methods of education.

Summary of findings for the effect of the outdoor education programs modules to changes social skills participants found that the sequence of activities in the modules have a significant impact on cooperative teamwork. This strengthened the opinion of Schoel et al (1988) and Rohnke (1989) which states that in outdoor education, the organization of activities for the outdoor education program modules should be designed to take into account the needs and desires of the participants. Generally there is no right or wrong order and each group of participants requires a series of special order based on the goals and the ability of the participants

The study by Kimball and Bacon (1993), stated that the challenges inherent in the activities have a strong influence towards the setting and achievement of goals. He proposed outdoor education must be challenged so that participants is always in a state of readiness in the face of any imminent risk. The level of difficulty of the activities are to be upgraded over time. Bisson (1998), supports the opinion and states that the increase in the level of challenge or obstacle in an activity has a close relationship with the effectiveness of the programs.

In connection with this study, several conclusions can be made. The first is that participation in outdoor education programs provide benefits in terms of changes in student social skills. This study also showed that there are positive changes in all constructs studied. This finding is consistent with the findings of studies conducted by other researchers such as Neill (2003). Summary findings coincide with the findings made by Bisson (1997) and Priest (2004) which showed that training a group with low risk activities should be done before a more challenging and risky activity as abseiling and kayaking.

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