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## A SYSTEMATIC REVIEW OF OUTDOOR ADVENTURE EDUCATION PROGRAMS IN SCHOOLS

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### **Abstract**

*Implementing outdoor adventure education (OAE) programs with school pupils brings unique challenges and outcomes. However, no previous review on OAE programs has focused on the classroom cohort. We systematically reviewed quantitative research of OAE programs in schools regarding outcomes, program types, and methodology. Data were collected from 7 databases using a syntax representing concepts of OAE and schools. Out of the 3,535 articles found, 8 were selected. These results reveal methodological limitations such as no control group, vague program description, and questionable time of measurements. The reviewed research measured 16 different outcomes and revealed ambiguous results. OAE shows the potential to improve cohesion in student groups and students' self-efficacy; however, more rigorous research with classes that remain intact after the program ends is needed. Overall, OAE programs may benefit various aspects of a pupil's life, but it is crucial to have a clear direction of where the program leads.*

**Keywords:** outdoor adventure education, school, classroom, systematic review.

## Introduction

Alongside academic knowledge, schools should ensure the well-being of students (Zeng, Hou & Peng, 2016). Norms existing in the classroom are connected to student behaviour (Peets et al., 2015); the social context predicts school satisfaction, academic results (Pawlowska et al., 2014), the probability of intervening in bullying situations, and self-efficacy (Wachs et al., 2018). This suggests a need for programs that could improve the peer context in the classroom, and outdoor adventure education (OAE) could be considered one of the answers to this requirement. With groups at the centre of their focus (Jostad, Butnhorp & Paisley 2013) and their observed effectiveness at improving group cohesion (Cooley, Burns, & Cumming, 2015), OAE programs could potentially be an effective tool in the quest to enhance classroom relationships, since these groups remain intact after the program ends. As Richmond et al. (2018) reflect, OAE interventions with pupils from the same school allow them to carry the changes in relationships that occurred during the program into the future and keep building on them. However, no previous meta-analysis or systematic review was found that described the effectiveness of OAE programs for school classes that remain intact after the program ends. That is the goal of this review.

In the field of OAE, there have been reviews and meta-analyses which focused on general outcomes (Hattie et al., 1997) and outcomes for specific groups such as students (Cooley, Burns & Cumming, 2015) and adolescents (Cason & Gillis, 1994; Fang et al., 2021), but no previous reviews focused on the school environment. It has been shown that different group types have different outcomes when participating in OAE programs (Hattie et al., 1997). Therefore, findings from adolescent groups should not be generalised with findings from school classes that remain intact afterwards. Classrooms have different pre-existing group norms, interpersonal relationships, and cultures, which could influence results (Sibthorp & Jostad, 2014). While there is qualitative support for the benefits of the OAE program for classrooms, more quantitative support is encouraged (Richmond et al., 2018). Therefore, this review aims to look at existing quantitative research involving OAE programs performed with school pupil groups (from the same school or several schools) that remain intact after the program ends. This review focuses on *program type, program outcomes, and research quality*.

OAE programs mainly involve challenging and innovative group activities in outdoor conditions (Cooley, Burns & Cumming, 2015) and include problem-solving, cooperation and reflection on the experience (Gutman & Schoon, 2015). Typically, participants learn and work in small groups led by a trainer or facilitator who provides them with mentally or physically challenging tasks and encourages them to leave their “comfort zone”. Generally, the duration of OAE programs is inclined to be more than a week (Hattie et al., 1997); however, this became more variable as the number of organisations providing such programs increased and the need for programs to be more accessible grew (Rushford et al., 2020). Now, the duration of OAE programs may fluctuate between half a day or even a year, averaging 3–5 days (Bowen et al., 2016). However, while it may seem understandable that shorter programs may have a lesser impact, the implications of the varying duration of programs need further investigation (Rushford et al., 2020). It can be noticed that the concept of OAE is broad, and similar programs have been defined using various terms such as outdoor behavioural therapy, wilderness education, wilderness programs or adventure therapy (Gutman & Schoon, 2015). In this paper, we describe OAE programs as involving several essential components: *group, outdoors, challenging activities*

and *reflection*. Given the broad spectrum of OAE programs, program type becomes one of the points of interest in our review.

Hattie et al. (1997) found 40 different measured outcomes of OAE programs that significantly improved. The authors grouped them into six main dimensions: academic achievements, leadership, self-concept, personality, interpersonal skills, and being adventurous. In the context of education, OAE programs provided similar benefits (Cooley, Burns & Cumming, 2015; Cason & Gillis, 1994). Student and pupil participants of OAE programs demonstrated increased locus of control, confidence (Neill & Richards 1998), understanding of oneself, school attendance, grades (Gutman & Schoon, 2015), self-regulation, ability to set and seek personal goals (Sibthorp et al., 2015), and resilience (Blaine & Akhurst, 2021). There is a notable rise in interest in group (rather than individual) outcomes of OAE programs (Yasim, 2016). During most OAE programs, participant groups cooperate, leading to improved group cohesion, groupwork skills, interpersonal skills, and teamwork (Gutman & Schoon, 2015). Groupwork and group cohesion are sometimes suggested as the main beneficiaries of such programs since student groups who partake in OAE programs have a more positive attitude towards groupwork and overall satisfaction with the learning environment (Cooley, Burns & Cumming, 2015). Thus, in the context of education, three categories of outcomes could be suggested based on more recent research: *social relationships*, *self-efficacy*, and *self-concept* (Cooley, Burns & Cumming, 2015; Yasim, 2016). However, these suggested outcomes stem from research with higher education students, and although relatively similar results could be expected with school pupils (Williams et al., 2018; Neill, 1997), they become another focus of this review.

Despite various benefits of OAE programs, quantitative research measuring these effects often faces substantial methodological limitations (Sheard & Golby, 2006; Cooley, Burns & Cumming, 2015; Hattie et al., 1997) which raises concerns about the validity of its findings. A review by Scrutton and Beames (2015) found that common limitations are: *lack of control group*, *inappropriate questionnaires (poor properties, unsuited for participant age, etc.)*, *poor time of measures (immediately before and after the program)*, and *small or poorly composed sample*. Similar limitations in the field have been mentioned in other literature (Neill, 2003; Shirilla, Solid & Graham, 2021). However, a recent methodological paper by Shirilla, Solid and Graham (2021) noticed that current research is moving in the right direction and avoiding these limitations. The authors also suggest acquiring longitudinal data, since measuring immediately before and after a program or intervention prevents us from knowing if we are measuring long-term change or just an emotional response after an exciting day. On the other hand, a lot of research in the field of OAE is qualitative and focuses on the different and unique experiences of a group (Davidson, 2001). This qualitative orientation enriches our knowledge of various benefits (Scrutton & Beames, 2015) and helps practitioners understand groups better. However, to establish a systematic change and the inclusion of more OAE programs in education, there is a need for more quantitative research which could reveal the long-term benefits of OAE programs (Dathatri, 2011).

One of the difficulties that research in OAE faces is operationalising qualitative results and acquiring sound quantitative data. The generalizability of OAE research has been a concerning topic of debate for a while (Allison & Pomeroy, 2000). OAE itself focuses on things that are unique to each group, and each program can be different in its duration, type, and goals. This raises the question of how the experience of one group can be compared to that of another. Lack

of generalizability leaves obvious gaps in quantitative literature. Thus, the issue is not only the lack of research in the field but also the unavoidable limitations in the methodology (Neill, 2003; Scrutton & Beames, 2015). This may occur due to varying circumstances of OAE, such as unique group dynamics, differing experience of the group facilitator (the person leading the program) and program type. However, while we may have to accept that the uniqueness of groups will always be an uncontrollable factor, it is important that the other factors are as controlled as possible.

Another concern is the lack of significant findings from methodologically sound research. Research by Williams and others (2018) included a control group and a relatively large number of participants (335), and measured the long-term effects of a week-long OAE program. Despite the authors mentioning significant qualitative results, there was no significant long-term quantitative improvement in various psychological aspects such as self-efficacy and well-being compared to the control group (Williams et al., 2018). Thus, while there is support for various benefits of OAE (Hattie et al., 1997; Cooley, Burns & Cumming, 2015), recent and methodologically sound quantitative research finds no statistically significant benefits (Sheard, & Golby, 2006; Williams et al., 2018). These findings raise several considerations. Firstly, significant qualitative findings suggest the limited possibility to operationalise various benefits of OAE. The second possibility could be that the effects of OAE programs are more short-term than previously thought, since this research measured lasting results. Lastly, this could occur due to a practical issue related to relative inconsistencies in how OAE programs are performed.

Despite supporting research and possible methodological risks, we cannot generalise the current findings in particular contexts such as classrooms. Most OAE researchers note the importance of group dynamics during the program (Sibthorp & Jostad, 2014); however, most groups that participate in OAE programs and research separate after the program ends. Consequently, only individual (not group) characteristics can be measured in the long term. It can be challenging to implement OAE programs and measure their effects in the context of formal education (within school classrooms) due to prominent safety regulations, budget cuts or schools' prioritisation of science topics (Prince, 2019). Therefore, an understandable lack of research with groups that remain intact after the program is finished, such as school classes, can be observed (Richmond et al., 2018). A systematic review by Becker and others (2017) reviewed the effects of regular classes in outdoor settings. Despite being similar in topic and methodology, it focused on individual rather than group aspects. Thus, while this review cannot directly help the methodological limitations of the existing literature, it seeks to minimise the gap in knowledge of existing studies on OAE in classrooms of school pupils – closed existing groups.

This research aims to systematically review existing quantitative literature on programs based on OAE that are performed with school pupils. The research seeks to answer the following questions: Which psychological and social dimensions could benefit from OAE programs? What types of programs are used in the school context? What are the common methodological issues found in the research?

## 1. Materials and methods

Several prepositions had to be considered in preparation for the systematic review and search strategy. Firstly, this research began based on the view that a classroom is generally a unique group; thus, generalising previous findings from research focusing on different group types should not occur. Secondly, based on previously mentioned literature, three main problems can be asserted: OAE has a broad point of focus; literature in the field faces methodological criticism; and OAE programs vary drastically. Additionally, no previous systematic review focused on the effectiveness of OAE programs with school pupils.

Based on these statements, a search strategy was created to reveal more insight into three questions: a) What type of OAE programs are used with school pupils? b) Does the research have common methodological limitations? and c) What outcomes are measured after the program? This review seeks to investigate quantitative studies which measured the effects of OAE programs performed with school pupils from the same school or schools. A systematic search strategy was implemented, and selected articles were reviewed to achieve this.

**Search strategy.** For this systematic analysis, PRISMA recommendations (Moher et al., 2009) were used in preparation for the acquisition of data and the creation of the diagram. Since no previous review was found, no time period was set for the search – all research up to February 2019 was included. Since the topic consists of the fields of psychology and education, a wider variety of research databases was sought. Seven databases were selected for the research: ERIC, JSTOR, SAGE journals, Science Direct, SocINDEX, Taylor and Francis, and Academic Search Complete. These databases were selected based on their focus on social sciences and their availability to our institution.

The search strategy used two main criteria: 1) research papers had to involve an OAE-based program or intervention; and 2) research had to be performed with school pupils from the same school or schools. Therefore, the search strategy involved such terms as: *Outdoor education*, *outdoor learning*, *outdoor behavioural*, *wilderness program*, *adventure education* and *school*, *classroom*, *school-based* and *class*. The syntax used in the search is shown in Figure 1. Since the syntax was acceptable in all mentioned databases, no specific changes had to be made. However, to narrow search results in some databases, additional criteria were added, if available. These criteria were: field or research (psychology, education), English language, and academic journals. Across the seven databases, the primary search found 3,535 articles. Table 1 shows the number of results according to the database.

“Outdoor adventure” OR “Outdoor learning” OR “Outdoor behavioural” OR “wilderness program” OR  
“Adventure education”) AND (school OR classroom OR school-based OR class\*

Fig. 1. Search syntax

**Table 1.** Articles found based on database

	N
Academic Search Complete	242
Science Direct	385
JSTOR	125
SocINDEX	84
ERIC	818
SAGE	546
Taylor and Francis	1,335
Overall	3,535

**Article selection.** The first selection step involved the selection of articles based on their title. An article was included if the title or keywords involved terms used in the search syntax (or similar) from both the OAE and school contexts. The terms used for the inclusion of articles can be found in Table 2. Since this research involved one researcher, measures were taken to reduce the chance of type I error (false negative). The researcher was permitted to select an article even if it did not include the exact mentioned terminology in its title or keywords. This exception was also supported by the common occurrence of unusual and playful article titles in the field of OAE and experiential learning. In total, 767 out of 3,535 articles were selected in this step after excluding duplicates.

**Table 2.** Inclusion criteria based on article title

Outdoor adventure education keywords	School context keywords
Outdoor education	School
Outdoor learning	Pupils
Outdoor behavioural learning	Students
Wilderness program	Classroom
Adventure education	School based
Outdoor adventure	Class
Adventure learning	Adolescents
	Teenagers
	Education

**Abstract review.** The second selection step involved reviewing the abstracts of the articles included in further research. During this stage, it was sought to select articles that matched three main criteria: a) program is based on OAE; b) research is focused on school or classroom context; and c) quantitative data is provided. In this stage, articles were rejected rather than selected. A paper was rejected if it matched one or more rejection criteria, such as specific cohorts, no research, only qualitative research, etc. A more detailed description of the rejection criteria is given in Table 3. If the abstract did not provide enough information to reject the article, it was not

rejected. During this step, 591 papers were rejected based on their abstracts, leaving 176 articles for full text review.

**Table 3.** Rejection criteria based on abstract

Rejection criteria
No research
Not in English
No program or intervention applied
Not with students
Not the context of school
Only qualitative results
No quantitative data
Systemic review or meta-analysis
Literature review
Non-scientific paper
Article was retracted
Research focuses on higher education students
Research done with teachers
Program not based on OAE
Specific cohort of students or pupils

**Final article selection.** For the final selection of articles (the third step), the selection principle was used once again. Firstly, for an article to be selected, the research had to be performed with school pupils from the same school or schools, suggesting that they potentially have interactions outside and after the program. Secondly, the study had to involve an OAE program or intervention. Thirdly, it had to have quantitative data measuring the effectiveness of the program or intervention (Table 4). Based on the final selection process, 8 articles were selected. The selected articles differed in how descriptive the group or school context was. Since the school context was the focus of this review, a brief description is given in Table 6. Some articles [No. 1; 4; 6; 8] provided enough detail to discern that the majority of participants were from the same classrooms or schools, while others were vaguer and more open to interpretation [No. 2; 3; 5; 7]. Despite this, all of the mentioned articles were selected for review.

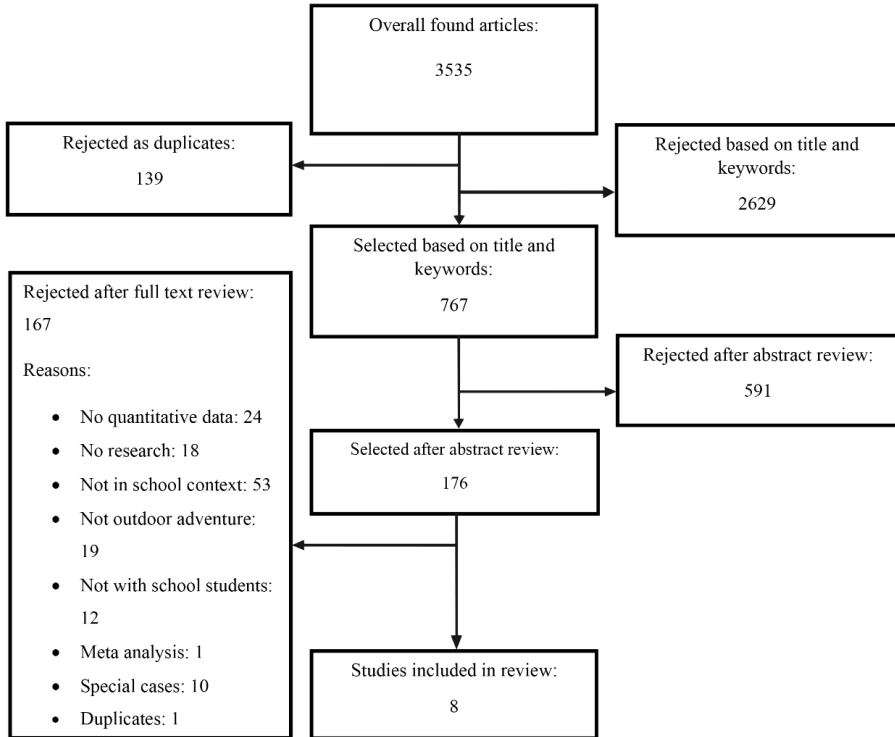
**Table 4.** Final article selection criteria

School or classroom context and involved students.	Involved principles of OAE.	Quantitative evaluation of effectiveness.
<p>Research was done in the context of certain school or schools.</p> <p>Research involved students.</p> <p>Students were not from a specific cohort or selected based on specific reasoning (disability, antisocial behaviour, etc.).</p>	<p>Research involved activities based on OAE.</p> <p>Outdoor activity was not focused on a specific academic field (biology, history etc.).</p>	<p>Research involved quantitative methods for effectiveness measurement.</p> <p>Effectiveness was before and after the program.</p>

## 2. Results

This review focused on OAE programs with school pupils regarding program type, program outcomes and methodological quality of research. Out of 3,535 articles, 8 were selected for final review during the selection process. The small number of papers passing the selection process (Figure 2) suggests that there could be a gap in quantitative research measuring the effectiveness of OAE programs with school pupils. It should be noted that some research used both qualitative and quantitative evaluation measures [Table 5: No. 1; 3; 8]. Even when quantitative measures showed no significant results, qualitative insights supported the significance of the OAE programs. However, despite the significance of qualitative results, this review focuses on quantitative results.





**Fig. 2.** Diagram of the research selection process

The analysis revealed that only one study [No. 1] focused on a particular school classroom. Other articles did not clarify whether student groups continue learning and spending time together after the program had ended; this could be left open for interpretation. This could suggest that OAE programs focus on individual rather than group goals, even when previous research suggests group benefits. Three studies focused on a single school [No. 1; 3; 6] and four were performed in multiple schools [No. 4; 5; 7; 8], while one study left a rather vague description, which cannot be fully discerned [No. 2]. Participants were primarily teenagers, the youngest group being 5th graders (age unspecified), while the oldest were 12th graders (aged 16–19). The number of participants varied from 24 to 335, with an average of 191.8 participants.

**Program type.** The results show that the duration, conditions, and circumstances of the OAE programs were different. Program duration varied from 1 day [No. 4] to 23 days [No. 6]. Another difference was evident in the way that programs spread throughout time. Of the 8 programs, 5 involved a one-time adventure – a single journey (independent of its duration) [No. 2; 4; 6; 7; 8] – while the other 3 [No. 1; 3; 5] had multiple regular outdoor adventures and reflection meetings with students throughout a certain time span of up to 3 years [No. 3]. Two

main categories of duration type can be noticed: single occurrence adventures and multiple adventure programs.

The program format also varied widely. Some involved programs in special outdoor residences created for experiential learning to provide participants with a challenging group experience, innovative tasks, and rope courses [No. 4; 8]. Others involved programs that took participants hiking through national parks and mountains or canyoning through rivers – a more natural environment [No. 2; 3; 6; 7]. Additionally, some programs involved a mixture of the above, with some parts of the program taking place in a school or special residence and others in natural surroundings [No. 1; 5]. Three main categories of OAE types can be noticed: a) those performed in special conditions; b) those performed in natural environments; and c) those with a combination of the two.

**Program outcomes.** These results reveal that OAE programs were applied to achieve various goals. Different measured constructs were observed: goals and aspirations [No. 1]; self-efficacy [No. 1; 2; 5; 8]; problem solving, empathy [No. 1]; group cohesion [No. 4]; school grades [No. 3]; self-concept [No. 2]; learning climate [No. 2]; spiritual dimension [No. 2]; relationships with nature [No. 8]; emotional intelligence [No. 6]; resilience [No. 5]; psychological strength [No. 8]; emotional difficulties [No. 8]; interpersonal connectedness [No. 8]; and growth mindset [No. 5]. Some constructs, such as emotional intelligence, psychological strengths, and emotional difficulties, had additional subscales, which in some cases could be considered as individual constructs (Table 5). However, the original definitions used by the authors are maintained in this study. Overall, 16 different constructs were measured in the reviewed studies. The most common construct, and the only one repeated in 4 studies, was self-efficacy [No. 1; 2; 5; 8]. Group cohesion and interpersonal connectedness, while named differently, could also be grouped under the theme of relationships.

Not all measured outcomes significantly improved after the OAE program. Research showed significant positive changes in *goals and aspirations* [No. 1], *group cohesion* [No. 4], *school grades* [No. 3], *spiritual dimension* [No. 2], *resilience* [No. 5], and *emotional intelligence* [No. 6] after the program was implemented. However, no significant change was found for *empathy* [No. 1], *problem solving* [No. 1], *learning climate* [No. 2], or *psychological strengths* [No. 8]. Ambiguous results were found for *relationships* and *self-efficacy*. Self-efficacy showed an increase in two studies [No. 1; 5], while no significant change in two others [No. 2; 8]. Relationships significantly increased in one study [No. 4] and showed no significant change in one [No. 8].

Unfortunately, outcomes and program type cannot be compared since only self-efficacy was measured in more than one study [No. 1; 2; 5; 8]. In this case, all programs which measured self-efficacy involved hiking, and their duration varied between 4 and 7 days and included reflection. However, despite the similarity of the programs, significant improvement in self-efficacy was revealed in only two [No. 1; 5].

**Table 5.** Reviewed literature: authors, adventure type and duration, participants, outcomes, findings, and group context.

No.	Authors	Adventure type and duration	Participants (quantity, country and age)	Quantitative variables	Significant findings	Group context
1.	Beightol et al. (2012)	10 meetings for 2-hour team-building seminars in school, followed by 3 day-long adventure excursions.	N = 105; 5th graders; New Mexico.	Goals and aspirations; self-efficacy; problem-solving; empathy.	Long-term improved goals and aspirations; short-term improved self-efficacy;  no change in empathy and problem solving.	Entire 5th grade in a public school in Santa Fe, New Mexico.
2.	Cheung (2011)	Backpacking and mountain orienteering for 3 to 4 days.	N = 318; age: 16–19; China.	Self-concept; self-efficacy; learning climate; spiritual dimension.	Improved spiritual dimension. No change in others.	A case study in a certain school context  (vague description).
3.	Fuller, Powell & Fox (2017)	Multiple different adventure activities (such as woodland archery, canoeing, mountain biking) with reflections. Two weekends a year, for 3 years.	N = 24; age: 14–16; UK.	Grades.	Improved English, math and science results.	Selected student groups at an academy school in southern England.
4.	Glass & Benschoff (2002)	1 day spent performing group exercises in a special outdoor adventure facility.	N = 167; age: 11–14; USA.	Group cohesion.	Improved group cohesion.	5–8th graders (volunteers) from three public schools in eastern North Carolina.
5.	O'Brien & Lomas (2017)	2-day introduction course; 2-day hike; 1 reflection day  (total: 5 days).	N = 196; 6–9th graders; UK.	Self-efficacy, resilience; growth mindset.	Improved self-efficacy, increased resilience and mindset.	Students from three schools in the United Kingdom.

6.	Opper et al. (2014)	Outdoor adventure, including hikes and camping for 23 days (specifics lacking).	N = 76; 10th graders; South Africa.	Emotional intelligence (EQ) with subscales: interpersonal and intrapersonal abilities, stress management, adaptability and general mood.	Improved overall EQ and 3 of 5 sub-categories: intrapersonal skills, adaptability and general mood. No effect on interpersonal skills and stress management.	All participants were from a public all-boys school in South Africa.
7.	Wang et al. (2004)	5-day adventure camp.	N = 314; age: 12–16; Singapore.	Relationship between motivation to participate and program satisfaction.	Intrinsic motivation to participate predicts higher satisfaction with OAE program. External regulation decreases satisfaction in the program.	Students from three secondary schools in Singapore.
8.	Williams et al. (2018)	Outdoor adventure activities in a specific residence followed by a hike. Full duration of program – 7 days.	N = 335; age: 14–16; Australia.	Psychological strengths: self-efficacy, mental well-being, basic psychological needs. Emotional difficulties: anxiety, depression. Strengths and difficulties: interpersonal connectedness, nature relatedness.	No significant improvements or differences were found in comparison to control group.	2 public schools in Victoria, Australia, with Year 9 students.

**Quality of methodology.** Various common limitations were reviewed (Table 6), including: having a control group; validity and reliability of used measures and questionnaires; use of pre-test and chosen time of measure; measuring long term effects of the program; and clarity of program design and facilitators.

The results in Table 6 show that 4 studies had a control group [No. 1; 3; 5; 8], while 4 did not [No. 2; 4; 6; 7], which means that the findings of those studies relied on the participating group alone. All reviewed research had a certain description of the validity and reliability of their questionnaires. However, one of them did not provide reliability measures [No. 1]. All reviewed

research provided a description and reasoning for using their questionnaires to measure their constructs and used pre-test measures for effects. Of the 8 studies, 5 research designs [No. 1; 3; 5; 6; 8] performed more than one post-test, thus measuring long-term effects, while 3 research designs [No. 2; 4; 7] did not. However, 2 studies [No. 4; 6] used pre-test and post-test immediately before and after the program, 2 studies [No. 1; 2] provided no details, and 4 studies [3; 5; 7; 8] used pre-test at a separate time from the day of the program. All mentioned research provided understandable and clear results and statistical analysis; 5 studies [No. 1; 3; 4; 5; 8] provided clear and comprehensive descriptions of the OAE program, while 3 studies [No. 2; 6; 7] had abstract and non-replicable descriptions. Furthermore, 3 studies [No. 4; 5; 8] provided descriptions of facilitators or group leaders, while 5 studies [No. 1; 2; 3; 6; 7] did not.

**Table 6.** Methodological qualities of reviewed research

No	Authors	Control group?	Questionnaire V&R	Time of measure	Measured long-term effects	Clear program/intervention design?	Facilitator information
1.	Beightol et al. (2012)	Yes.	Validity provided. Reliability not provided.	Unclear time of pre-test and first post-test. Second post-test 4 months after program.	4 months.	Yes.	No information.
2.	Cheung (2011)	No.	Provided both validity and reliability.	Unclear time of pre-test and first post-test.	None.	No.	No information.
3.	Fuller, Powell, & Fox (2017)	Yes.	Not-applicable (measure of grades).	Several days before and after program, three years of follow-up measurements.	3 years.	Yes.	No information.
4.	Glass & Benshoff (2002)	No.	Provided both validity and reliability.	Same day as program on both pre and post testing.	None.	Yes.	8 group leaders with 3–15 years of experience.
5.	O'Brien & Lomas (2017)	Yes.	Provided both validity and reliability.	Week before program, immediately after and one month after program.	1 month.	Yes.	Professional facilitators with 3–10 years of experience.

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6.	Opper et al. (2014)	No.	Provided both validity and reliability.	Same day as program on both pre and post testing. Second post-test 3 months after program.	3 months.	No.	No information.
7.	Wang et al. (2004)	No.	Provided both validity and reliability.	Week before and after the OAE program.	None.	No.	No information.
8.	Williams et al. (2018)	Yes.	Provided both validity and reliability.	Two pre-test measures, and three post program measures.	2 years.	Yes.	Each group had a facilitator and a school staff member.

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### 3. Discussion

This review sought to gain more insight into the field of OAE in the context of schools. To this end, 8 studies involving OAE programs for school pupils were selected for final review. The review focused on three main aspects: OAE program type and duration, program outcomes, and methodological quality of the studies. The results show that the duration and type of programs varied strongly – from a day’s hike to three years of follow up meetings. Significant outcomes, while ambiguous, can be noticed in self-efficacy, group cohesion, interpersonal relationships, grades, etc. However, some studies have strong methodological limitations, such as a lack of a control group (Glass & Benshoff, 2002) or questionable times of measurement (Opper et al., 2014).

During the literature search, most research focused on qualitative evaluation methods to evaluate the effectiveness of OAE programs. Many OAE programs and interventions focused on specific student groups, delinquent teenagers, or motivated youth who wanted to participate in similar programs. It can be observed that research on OAE programs with school pupils is lacking, which is unfortunate since almost every child spends a significant amount of time with classmates, and this context can be important. This review reveals that OAE can potentially improve cohesion (Glass & Benshoff, 2002) and self-efficacy (O’Brien & Lomas, 2017). It is also known that classroom dynamics (Ghaith, 2002) and self-efficacy (Tenaw, 2013) relate to academic achievement. This was indirectly demonstrated by Fuller, Powell and Fox (2017), who performed a mixed research design involving qualitative measures of self-efficacy and quantitative measures for grades. After an OAE program with students, qualitative data revealed improvement in self-efficacy, while quantitative data showed improvement in grades. This could be a serious argument for the use of OAE in formal education as a tool to improve not only the psychological well-being of students but also their academic achievements.

While there are other interventions and programs which could improve various aspects of self-efficacy (Falco & Summers, 2019), OAE puts group processes at the centre of attention, which creates space for improved cohesiveness and interpersonal relationships. Since group

cohesion can change throughout the OAE program (Sibthorp & Jostad, 2014), this suggests that we cannot generalise results between groups that stay together after the program and those that go their separate ways. Some of the reviewed research focused on one school or class, but only one reviewed study measured the long-term effects of interpersonal relationships. However, no significant differences in interpersonal connectedness were noticed in comparison to the control group (Williams et al., 2018). Relationships did develop, but since this also occurred in the control group, it can be questioned whether this occurred due to the OAE program or due to other potential factors such as the natural dynamic of group development. Additionally, while Glass and Benshoff (2002) observed improved cohesion after one day of OAE activities, this was measured immediately after the program, suggesting a momentary sense of cohesion rather than long-term improvement.

Similarly, the potential of OAE programs to improve group cohesion was observed in higher education; however, this was overshadowed by methodological limitations (Cooley, Burns & Cumming, 2015). Thus, while OAE is seen to improve cohesion in various groups (Sibthorp & Jostad, 2014) and qualitative research indicates significant improvements in social connectedness (Richmond et al., 2018), it appears that quantitative research does not bring certainty in an educational setting. Unfortunately, only two studies in this review provided more detailed information about the group. Details such as noting whether pupils are classmates or schoolmates, how long they have been together, and what their relationships are outside of the OAE program could be crucial in learning more about the group benefits of OAE in a school setting. Despite this, qualitative information suggests that OAE provides benefits to students even if they are not represented in quantitative data (Williams et al., 2018). This indicates that it is likely that what is measured with quantitative measures may not be the same as what is improved during OAE programs.

It is important to note that group cohesion and other group-level effects are extremely difficult to operationalise. There is more than one way to measure group cohesion. For example, some researchers measure classroom group cohesion based on an average number of sociometric nominations (Martín Babarro et al., 2017), suggesting that the more classmates an average pupil likes, the higher the cohesion. Another method, as was performed in research reviewed in this paper, is to measure cohesion based on questionnaires that evaluate the subjective perceptions of students (Glass & Benshoff, 2002). When measuring cohesion through subjective evaluation, there should be a relative consensus between group members (Gully, Devine & Whitney, 2012). For example, if students answer questions about group cohesiveness and some members suggest high cohesiveness while others low, this could indicate that some group members had fun and made friends, while others did not. This would tell us little about the cohesiveness of the group. Secondly, even if we have a consensus between group members, we do not know if the measure of cohesion is accurate compared to other groups (Marsh et al., 2012). For example, members of a very cohesive group with norms of being highly critical of themselves could evaluate their cohesiveness lower than members of a new group who are in a “honeymoon” stage. Regardless, the complexity of measuring group cohesion could partly explain why qualitative data reveals significant results while quantitative data struggles. Overall, more research is needed to measure the development of a class as a group during OAE programs. While a lot of research has been performed with school-aged children on the individual development and interpersonal skills

levels, little research has focused on the development of the class as a group, and no research has involved OAE in this regard (Richmond et al., 2018). It could benefit our knowledge about group development after an OAE program if this kind of research involved longitudinal sociometric data; however, such a research design would require a lot of resources.

In terms of OAE program duration and type, it appears that OAE programs are flexible and vary throughout studies. Despite this, two main areas of variation could be noticed – duration and activity. Some adventures were performed in special OAE facilities – they focused on challenging tasks that quickly forced groups out of their “comfort zone” and demanded group work. Other adventures were hike oriented, and the challenges were more long-term and abstract (occurring naturally – the need to build a campfire, make food, etc.). The duration of a single adventure varied from 1 day to 23 days. Some programs involved multiple shorter experiences and encounters with facilitators that occurred in a time span of up to three years. Thus, two types of programs can be discerned: single and multiple encounters. While some research suggests that longer programs show better outcomes (Hattie et al., 1997), this review cannot confidently support this statement. This is due to the very different program types, possible contexts of program conditions (facilitators, previous relationships etc.) and methodologies of these studies. Williams et al. (2018) found no significant longitudinal change in group relationships after a 7-day program, while Glass and Benschhoff (2002) noticed improved group cohesion after one day but measured it immediately after the program. Alongside methodology, there were differences in facilitators, group activities, school context etc., which are all important in OAE (Sibthorp & Jostad, 2014). A similar case is with self-efficacy, which improved in one study and did not improve in another, while both programs were reasonably similar on paper (O'Brien & Lomas, 2017; Williams et al., 2018). A study performed by Mygind (2009) revealed significant individual and relationship benefits just by having classes in the forest in various weather conditions, without adding additional challenges. This could suggest that a change of scenery and the presence of nature may benefit pupils, strengthening the importance of nature in OAE (Neill, 2008). Thus, it seems that there is no single way of creating an OAE program, and perhaps there does not have to be. It is possible that OAE programs should accommodate each unique group. However, the current review reveals an important necessity for quantitative research: *program details, facilitator details, activities and pre-existing group relationships* should be described thoroughly. Since programs differ so drastically, if research provides only narrow descriptions of context, the field of OAE could fall into a pit of non-replicable results. Since implementing longitudinal research and OAE programs in school settings can be challenging due to the demands of formal education, every study is essential and calls for methodological rigour.

The reviewed research measured various outcomes of OAE programs. Since many constructs have been measured and effects found, it seems that finding the focal point and the primary construct is difficult. Scrutton and Beames (2015) suggest that OAE programs are often associated with social development, yet this construct is too broad. Therefore, it is understandable that many researchers choose qualitative evaluation while keeping in mind the fact that different groups led by various facilitators come to different conclusions. In terms of measured outcomes, the same problem occurs as noticed in previous research (Hattie et al., 1997) – the variety of measured constructs is too broad. The 8 reviewed papers measured 16 different outcomes, and some even had additional subcategories. Throughout the reviewed research papers, only self-



efficacy and interpersonal relationships were repeated across more than one study. Essentially, this broad spectrum of potential outcomes may be a good thing, as it suggests that OAE can act as a form to acquire different results. O'Brien & Lomas (2017) showed that adding an additional intervention direction to an OAE program may bring additional benefits. The authors included growth-mindset training alongside the OAE program, and showed significant results in that regard compared to the control group. This suggests that a clear additional direction may improve the results of an OAE program. Furthermore, as mentioned before, this strengthens the idea that programs can be constructed to accommodate the group's needs.

While 16 constructs were measured, there are ways to group them. Most of them fit in the same categories as suggested by Hattie and colleagues (1997): *academic achievements*, *self-concept*, *personality*, *leadership*, *interpersonal skills* and *being adventurous*. However, more recent research has focused on *group cohesion* as an essential outcome of such programs (Sibthorp & Jostad, 2014). It could be suggested that group cohesion and interpersonal skills should not be grouped into the same category. Interpersonal skills represent individual characteristics, while group cohesion represents the subjective evaluation of current relationships in the group. It also seems that these dimensions do not fall far from the three main categories mentioned by Cooley (2015): *leadership*, *group cohesion* and *self-concept*. Based on the above presuppositions, we could propose to group these categories from the perspective of benefits to the individual and the group. In this case, self-concept would represent the individual benefits of OAE, leadership would represent the benefits of individual interactions with the group, and group cohesion would represent the relationships in the group itself. In other words, a proposition of grouping could be made stating that three points of development can be noticed during OAE programs: a) the personal development of the individual; b) the development of the interaction between group and individual; and c) the development of the group itself. While this grouping would not directly help operationalize the possible outcomes of OAE programs, it could give a direction for practitioners. A choice of direction could be important, especially regarding focusing on the group. If the OAE program is performed with a group that will dissipate after the program, there could be no benefit in focusing on group cohesion; thus, more focus should be placed on individual personal development. On the other hand, the opposite may be true in an educational setting where the group will potentially stay together after the OAE program is finished.

The final point of interest was the methodological strength of reviewed research. It can be observed that the quality varied strongly. Some research was methodologically strong, implementing strong pre-testing, a control group and measuring long-term effects through rigorous post-testing (Fuller, Powell, & Fox, 2017; Williams et al., 2018), while other research relied on a single pre-test and a single post-test, performing testing the same day as the program (Glass & Benshoff, 2002). Measuring the effect right after the program places a great shadow over the validity of the results and is not recommended (Scrutton & Beames, 2015), as it is hard to know if momentary emotion or actual change is measured in such conditions. Out of the 8 reviewed studies, 4 had no control group, which is a big concern for developing public knowledge on the effects of OAE. The lack of a control group again taints these results, since it cannot be known if the results occurred due to the program. On the bright side, it seems that research on OAE in the context of schools is growing, and new and high-quality research is being executed (Sheard & Golby, 2006; Williams et al., 2018). This will hopefully lead to a more robust understanding of

how this research should be performed and more generalisable results.

All in all, to systematically use OAE in the future to provide schools and classrooms with a measured and profound program, more research must be undertaken. This systematic review adds insights into OAE programs with school pupils. These findings mostly go alongside previous research (Hattie et al., 1997; Cooley, Burns & Cumming, 2015) showing that OAE programs performed in the school context vary in duration and type, with many outcomes that are measured. However, adding to previous insights, this study suggests a possible perspective on grouping outcomes based on three levels: individual, individual in relation to group, and group. These findings also confirm that school context is no exception to methodological limitations in OAE research (Scrutton & Beames, 2015). This study also reveals a new research gap for long-term, group-level effects in the school context. Since more recent research focuses on the group as the centrepiece of OAE, it would be very beneficial to see how OAE may help classroom cohesion develop. Additionally, it seems that OAE programs could be a great addition to boosting classroom cohesion relationships and student self-efficacy. More rigorous and longitudinal research needs to be performed to support these claims.

**Limitations and recommendations.** There are several recommendations that could be made based on this literature review. Firstly, future researchers in the field of OAE should keep in mind and describe the various possible influential factors which could be critical to the outcomes of the program, such as: program details, facilitator information, participants and their relationships, and methods. Without a clear description of these details, it becomes nearly impossible to build upon the existing knowledge as possible criteria are unknown. Secondly, this review reveals a wide gap in knowledge on how OAE programs affect the classroom as a group. More longitudinal research that includes OAE programs for school classrooms that stay intact after the program would be beneficial. While there are some insights that OAE may help develop group cohesion, this needs more support. A promising direction for future research would be to measure elements of classroom cohesion and development with and without OAE programs. It would also be beneficial to clearly define what is considered group cohesion in every specific case, and the collection of sociometric data could give important insights into the development of a group after an OAE program.

This research also provides a recommendation for practitioners to choose a clear point of focus. It could be beneficial to know whether the OAE program is oriented towards group-level effects, individual skills, or interpersonal skills. Additionally, this review provides insights in support of adding additional interventional goals, such as a growth mindset, for OAE programs. This could improve the benefits of OAE in an additional desired direction.

In terms of the limitations of this study, a few must be mentioned. Firstly, the search and review in this study was performed by one researcher, which always leaves a greater possibility of a Type 1 error – rejecting an article that should have been included. Secondly, not all databases were included in the search. Thus, there is a chance that more studies could have been found. Thirdly, only 8 articles met the criteria for this review, and several articles had strong methodological flaws. While these articles provide important insights into the existing state of research in the field, they also cloud the mentioned benefits of OAE.

## Conclusion

A systematic review of OAE programs in the context of schools was performed. These findings go alongside previous research conducted in different contexts. OAE programs differ in duration and type throughout different studies and face common methodological issues. These include lack of control group, bad timing of measurement and lack of longitudinal testing, and unclear description of participants and program details. Additionally, many outcomes are measured as possible results of OAE programs, which casts doubt on what the point of focus should be. Several insights regarding measuring group cohesion are provided. A new gap in knowledge is revealed concerning the long-term effects of OAE programs with school classrooms that remain intact after these programs. Overall, this review shows that there is a lack of rigorous research regarding OAE programs with school pupils and suggests several important notes for future research.

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## References

- Allison, P., & Pomeroy, E. (2000). How shall we “know?” Epistemological concerns in research in experiential education. *Journal of Experiential Education*, 23(2), 91–98. <https://doi.org/10.1177/105382590002300207>
- Becker, C., Lauterbach, G., Spengler, S., Dettweiler, U., & Mess, F. (2017). Effects of regular classes in outdoor education settings: A systematic review on students’ learning, social and health dimensions. *International Journal of Environmental Research and Public Health*, 14(5), 485. <https://doi.org/10.3390/ijerph14050485>
- Beightol, J., Jevertson, J., Carter, S., Gray, S., & Gass, M. (2012). Adventure education and resilience enhancement. *Journal of Experiential Education*, 35(2), 307–325. <https://doi.org/10.1177/105382591203500203>
- Blaine, J., & Akhurst, J. (2021). Quantifying the psychosocial outcomes of outdoor adventure education for adolescent learners in a South African setting. *South African Journal of Psychology*, 52(2), 161–174. <https://doi.org/10.1177/00812463211029024>
- Bowen, D. J., Neill, J. T., Williams, I. R., Mak, A. S., Allen, N. B., & Olsson, C. A. (2016). A profile of outdoor adventure interventions for young people in Australia. *Journal of Outdoor Recreation, Education, and Leadership*, 8(1), 26–40. <https://doi.org/10.18666/JOREL-2016-V8-I1-7281>
- Cason, D., & Gillis, H. L. (1994). A meta-analysis of outdoor adventure programming with adolescents. *Journal of Experiential Education*, 17(1), 40–47. <https://doi.org/10.1177/105382599401700109>
- Cheung, A. C. (2011). Spiritual development of adolescents in adventure-based programs in Hong Kong. *Journal of Experiential Education*, 33(4), 411–415. <https://doi.org/10.1177/105382591003300418>
- Cooley, S. J. (2015). Developing groupwork through outdoor adventure education: a systematic evaluation of learning and transfer in higher education (Doctoral dissertation, University of Birmingham). Retrieved February 28, 2021 from <http://etheses.bham.ac.uk/id/eprint/6275>
- Cooley, S. J., Burns, V. E., & Cumming, J. (2015). The role of outdoor adventure education in facilitating groupwork in higher education. *Higher Education*, 69(4), 567–582. Retrieved February 28, 2021, from <http://>

- www.jstor.org/stable/43648812
- Dathatri, D. (2011). The Voices of Outdoor Adventure: An Examination of the Long-Term Meanings and Impacts of Adventure Experiences for New Zealand University Students (Master's thesis, Victoria University of Wellington). Retrieved February 28, 2021, from <http://researcharchive.vuw.ac.nz/handle/10063/1707>
- Davidson, L. (2001). Qualitative research and making meaning from adventure: A case study of boys' experiences of outdoor education at school. *Journal of Adventure Education & Outdoor Learning*, 1(2), 11–20. <https://doi.org/10.1080/14729670185200041>
- Falco, L. D., & Summers, J. J. (2019). Improving career decision self-efficacy and STEM self-efficacy in high school girls: Evaluation of an intervention. *Journal of Career Development*, 46(1), 62–76. <https://doi.org/10.1177/0894845317721651>
- Fang, B. B., Lu, F. J., Gill, D. L., Liu, S. H., Chyi, T., & Chen, B. (2021). A Systematic Review and Meta-Analysis of the Effects of Outdoor Education Programs on Adolescents' Self-Efficacy, Perceptual and Motor Skills, 128(5), 1932–1958. <https://doi.org/10.1177/00315125211022709>
- Fuller, C., Powell, D., & Fox, S. (2017). Making gains: the impact of outdoor residential experiences on students' examination grades and self-efficacy. *Educational Review*, 69(2), 232–247. <https://doi.org/10.1080/00131911.2016.1199538>
- Ghaith, G. M. (2002). The relationship between cooperative learning, perception of social support, and academic achievement. *System*, 30(3), 263–273. [https://doi.org/10.1016/S0346-251X\(02\)00014-3](https://doi.org/10.1016/S0346-251X(02)00014-3)
- Glass, J. S., & Benschoff, J. M. (2002). Facilitating group cohesion among adolescents through challenge course experiences. *Journal of Experiential Education*, 25(2), 268–277. <https://doi.org/10.1177/105382590202500204>
- Gully, S. M., Devine, D. J., & Whitney, D. J. (2012). A meta-analysis of cohesion and performance: Effects of level of analysis and task interdependence. *Small Group Research*, 43(6), 702–725. <https://doi.org/10.1177/1046496412468069>
- Gutman, L. M., & Schoon, I. (2015). Preventive interventions for children and adolescents. *European Psychologist*, 20(4), 231–241. <https://doi.org/10.1027/1016-9040/a000232>
- Hattie, J., Marsh, H. W., Neill, J. T., & Richards, G. E. (1997). Adventure education and Outward Bound: Out-of-class experiences that make a lasting difference. *Review of Educational Research*, 67(1), 43–87. <https://doi.org/10.3102/00346543067001043>
- Jostad, J., Sibthorp, J., & Paisley, K. (2013). Understanding groups in outdoor adventure education through social network analysis. *Journal of Outdoor and Environmental Education*, 17(1), 17–31. <https://doi.org/10.1007/BF03400953>
- Marsh, H. W., Lüdtke, O., Nagengast, B., Trautwein, U., Morin, A. J., Abduljabbar, A. S., & Köller, O. (2012). Classroom climate and contextual effects: Conceptual and methodological issues in the evaluation of group-level effects. *Educational Psychologist*, 47(2), 106–124. <https://doi.org/10.1080/00461520.2012.670488>
- Martín Babarro, J., Díaz-Aguado, M. J., Martínez Arias, R., & Steglich, C. (2017). Power structure in the peer group: The role of classroom cohesion and hierarchy in peer acceptance and rejection of victimized and aggressive students. *The Journal of Early Adolescence*, 37(9), 1197–1220. <https://doi.org/10.1177/0272431616648451>

- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Annals of Internal Medicine*, 151(4), 264–269. <https://doi.org/10.1188/15.ONF.552-554>
- Mygind, E. (2009). A comparison of children's statements about social relations and teaching in the classroom and in the outdoor environment. *Journal of Adventure Education & Outdoor Learning*, 9(2), 151–169. <https://doi.org/10.1080/14729670902860809>
- Neill, J. T. (1997). Outdoor Education in the Schools: What can it achieve?. *concern*, 51, 7.
- Neill, J. T. (2003). Reviewing and benchmarking adventure therapy outcomes: Applications of meta-analysis. *Journal of Experiential Education*, 25(3), 316–321. <https://doi.org/10.1177/105382590302500305>
- Neill, J. T. (2008). Enhancing life effectiveness: The impacts of outdoor education programs (Doctoral dissertation, University of Western Sydney (Australia)).
- Neill, J. T., & Richards, G. E. (1998). Does outdoor education really work? A summary of recent meta-analyses. *Journal of Outdoor and Environmental Education*, 3(1), 2–9. <https://doi.org/10.1007/BF03400671>
- O'Brien, K., & Lomas, T. (2017). Developing a Growth Mindset through outdoor personal development: can an intervention underpinned by psychology increase the impact of an outdoor learning course for young people? *Journal of Adventure Education and Outdoor Learning*, 17(2), 133–147. <https://doi.org/10.1080/14729679.2016.1232199>
- Opper, B., Maree, J. G., Fletcher, L., & Somerville, J. (2014). Efficacy of outdoor adventure education in developing emotional intelligence during adolescence. *Journal of Psychology in Africa*, 24(2), 193–196. <https://doi.org/10.1080/14330237.2014.903076>
- Pawlowska, D. K., Westerman, J. W., Bergman, S. M., & Huelsman, T. J. (2014). Student personality, classroom environment, and student outcomes: A person–environment fit analysis. *Learning and Individual Differences*, 36, 180–193. <https://doi.org/10.1016/j.lindif.2014.10.005>
- Peets, K., Pöyhönen, V., Juvonen, J., & Salmivalli, C. (2015). Classroom norms of bullying alter the degree to which children defend in response to their affective empathy and power. *Developmental Psychology*, 51(7), 913–920. <https://doi.org/10.1037/a0039287>
- Prince, H. E. (2019). Changes in outdoor learning in primary schools in England, 1995 and 2017: Lessons for good practice. *Journal of Adventure Education and Outdoor Learning*, 19(4), 329–342. <https://doi.org/10.1080/14729679.2018.1548363>
- Richmond, D., Sibthorp, J., Gookin, J., Annarella, S., & Ferri, S. (2018). Complementing classroom learning through outdoor adventure education: Out-of-school-time experiences that make a difference. *Journal of Adventure Education and Outdoor Learning*, 18(1), 36–52. <https://doi.org/10.1080/14729679.2017.1324313>
- Rushford, N., DiRenzo, A., Furman, N., & Sibthorp, J. (2020). Implications of Shortening Outdoor Adventure Education Courses: Identifying Prioritized Outcomes and Effective Processes. *Journal of Outdoor Recreation, Education and Leadership*, 12(2), 164–181.
- Scrutton, R., & Beames, S. (2015). Measuring the unmeasurable: Upholding rigor in quantitative studies of personal and social development in outdoor adventure education. *Journal of Experiential*

- al Education, 38(1), 8–25. <https://doi.org/10.1177/1053825913514730>
- Sheard, M., & Golby, J. (2006). The efficacy of an outdoor adventure education curriculum on selected aspects of positive psychological development. *Journal of Experiential Education*, 29(2), 187–209. <https://doi.org/10.1177/105382590602900208>
- Shirilla, P., Solid, C., & Graham, S. E. (2021). The benefits of longitudinal data and multilevel modeling to measure change in adventure education research. *Journal of Experiential Education*, 45(1), 88–109. <https://doi.org/10.1177/10538259211027595>
- Sibthorp, J., & Jostad, J. (2014). The social system in outdoor adventure education programs. *Journal of Experiential Education*, 37(1), 60–74. <https://doi.org/10.1177/1053825913518897>
- Sibthorp, J., Collins, R., Rathunde, K., Paisley, K., Schumann, S., Pohja, M., ... & Baynes, S. (2015). Fostering experiential self-regulation through outdoor adventure education. *Journal of Experiential Education*, 38(1), 26–40. <https://doi.org/10.1177/1053825913516735>
- Tenaw, Y. A. (2013). Relationship between self-efficacy, academic achievement and gender in analytical chemistry at Debre Markos College of teacher education. *African Journal of Chemical Education*, 3(1), 3–28.
- Wachs, S., Bilz, L., Fischer, S. M., Schubarth, W., & Wright, M. F. (2018). Students' willingness to intervene in bullying: Direct and indirect associations with classroom cohesion and self-efficacy. *International journal of environmental research and public health*, 15(11), 2577. <https://doi.org/10.1177/08862605211056032>
- Wang, C. K. J., Ang, R. P., Teo-Koh, S. M., & Kahlid, A. (2004). Motivational predictors of young adolescents' participation in an outdoor adventure course: A self-determination theory approach. *Journal of Adventure Education & Outdoor Learning*, 4(1), 57–65. <https://doi.org/10.1080/14729670485200421>
- Williams, I. R., Rose, L. M., Raniti, M. B., Waloszek, J., Dudgeon, P., Olsson, C. A., ... & Allen, N. B. (2018). The impact of an outdoor adventure program on positive adolescent development: a controlled crossover trial. *Journal of Outdoor and Environmental Education*, 21(2), 207–236. <https://doi.org/10.1007/s42322-018-0015-8>
- Yasim, M. B. M. (2016). Effects of outdoor education on group cohesion among second year undergraduate teacher trainees from selected teacher education institutes in Malaysia (Doctoral dissertation, School of Graduate Studies, Universiti Putra).
- Zeng, G., Hou, H., & Peng, K. (2016). Effect of growth mindset on school engagement and psychological well-being of Chinese primary and middle school students: The mediating role of resilience. *Frontiers in Psychology*, 7, 1873. <https://doi.org/10.3389/fpsyg.2016.01873>

# SYSTEMATIC REVIEW OF OUTDOOR ADVENTURE EDUCATION PROGRAMS IN SCHOOLS

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## Summary

Outdoor adventure education (OAE) programs have shown success at improving the self-efficacy, interpersonal skills, and group cohesion of adolescent groups. These findings suggest that OAE programs could be a successful method of intervention for school classrooms in order to enhance pupils' personal and interpersonal skills. Such programs and other similar measures are being implemented in various schools in Lithuania; however, as yet no papers have investigated existing research on the effectiveness of these programs in schools. This systematic literature review assessed quantitative research which was performed on programs based on OAE and performed with school children. Three main points of interest were investigated: a) What psychological and social dimensions benefit from OAE programs? b) What types of programs are used in the school context? c) What methodological issues are common? Data were collected from 7 databases using a syntax representing the concepts of OAE programs and schools. Out of the 3,535 articles identified, 8 were selected which fit the criteria of involving quantitative results measuring the effectiveness of OAE programs performed with school pupils. The 8 reviewed studies measured 16 potential outcomes of OAE programs, out of which goals and aspirations, group cohesion, grades, the spiritual dimension, and resilience showed a significant improvement; problem solving, learning climate and psychological strengths showed no significant improvement; and self-efficacy and interpersonal relationships showed ambiguous results. However, these studies varied both in program type and methodological rigor. Program duration varied from 1 day to 23 days, and some involved a one-time adventure while others included multiple separate brief adventures. Additionally, serious methodological differences may also skew these results. Out of these 8 studies, only 4 included a control group, and 3 studies performed only one post-test measurement – 2 of which did so immediately after the intervention. Only 3 studies provided a broad description of the OAE program, which would allow for replication, while 5 studies did not. These results indicate that while OAE programs are a tool of great potential for improving various personal and interpersonal skills of pupils in school classrooms, there is a need for more and more rigorous research which could support these claims. In the reviewed literature, highly rigorous studies showed no significant improvements in self-efficacy, while less methodologically rigorous studies provided significant results. However, qualitative data shows that OAE programs help students and that this change is noticeable. This suggests potentially incorrect outcomes, or that a different approach could be necessary to build a stronger claim for the use of OAE programs in schools. We recommend that future studies involving OAE and other interventions use methodological rigor, include elaborate descriptions of the intervention, use a control group, and

*use pre and post testing at separate time points from the intervention. Additionally, we suggest that professionals choose a point of focus for the intervention – is it oriented towards the individuals in the classroom or the classroom as a group? To conclude, OAE programs are a potential tool to improve life in the classroom; however, more rigorous quantitative research is needed.*

**Keywords:** *outdoor adventure education, school, classroom, systematic review.*

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