

## **Sail Training: A Systematic Review**

**Manu Schijf**

8pebbles

**Pete Allison**

The Pennsylvania State University  
Palacky University Olomouc, Czech Republic

**Kris Von Wald**

The Pennsylvania State University

### **Abstract**

Starting around 2000, research activity about sail training increased such that there is now sufficient research on the subject to constitute a foundation upon which an emerging body of literature can be identified. The literature has the potential to be utilized to influence program design, policy, theory, and practice—a growing area of youth development practice. This systematic review of the current literature on sail training (post-2000) aims to (a) provide a single work for researchers and practitioners to consult for an overview of the current research on sail training; (b) perform a thematic analysis of the current trends for sail training research within the categories of demographic characteristics, research strategies, process, and outcomes; (c) quantify the greater discourse on sail training; and (d) suggest directions in which sail training research can go to build upon the current foundation. The main findings from this systematic review are that a limited set of methods are used in sail training research; participants experience a positive long-term effect in regard to personal and social domains; structured program design can lead to better specified outcomes; and the effects of demographic characteristics such as gender, age, or socioeconomic background remain unexplored. Much of the research is noncumulative and the related theoretical frameworks lack coherence.

**KEYWORDS:** youth development; sail training; experiential learning; adventure; personal and social development

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Sail training is an educational experience that occurs on board sailing vessels of various sizes in various contexts around the world. The educational experience has particular focus on personal and social development; “requires participants to confront many demanding challenges, both physical and emotional”; and “uses the experience for being at sea principally as a means to help people learn about themselves” (Sail Training International, 2010, para. 1, 4).

Sail training has its historical roots in the early 1900s (Merk, 2006), and there are currently over 100 tall ships operating around the world (Rowe, Dadswell, Mudie, & Rauworth, 2014). Sail training operators provide a variety of sail training experiences ranging from day sails in protected waters to yearlong voyages across oceans. These can take place on Class A, B, C, or D vessels ranging in size from yachts to four-masted barques. The United Kingdom alone has more than 25 sail training providers engaged in different types of sail training activities (McCulloch, 2007).

Activities on board fit broadly under the banner of sail training mainly for their educational purpose and their use of the sailing environment as a medium for eliciting positive change for participants. Although sail training experiences are available to people of all ages and abilities, sail training is predominantly connected with youth development (McCulloch, 2002).

The international nature of sail training, the wide range and large number of vessel operators, and program choices around the world pose problems for defining the theoretical framework for literature and research. Increasing expectations of research-informed practice and recent literature from fields related to sail training may have helped to instigate new studies and contribute to an interest in research directly about sail training. For example, Gordon, Harvour-Smith, Hay, and Priest (1996) looked at sail training as an outdoor education experience, making explicit connections between the literature in outdoor education and sail training and establishing the theoretical framework for sail training as related to outdoor and adventure education.

As the body of literature on sail training grows, it is useful to summarize current research so that practitioners, policy makers, and funding sources can make evidence-informed decisions. A summary at this point will also encourage a cumulative view of the current research and offer more coherence to inform future research.

At this time, a systematic review of literature on sail training has never been performed. The purposes of this review are to

- (a) provide a single work for researchers and practitioners to consult for an overview of the current research on sail training;
- (b) perform a systematic review of current sail training research with a focus on demographic characteristics, research strategies, and processes and outcomes; and
- (c) suggest directions for future research on sail training.

The following questions guided this research:

- (a) What does the literature say regarding the demographic characteristics in sail training?
- (b) What research strategies have been employed in sail training?
- (c) What does the extant literature say about the processes and outcomes of sail training?
- (d) What might be useful directions for future research that builds on the extant literature?

## Method

### Systematic Review

A systematic review is a well-established methodology within the education field (Suri & Clarke, 2009). The *Review of Educational Research* is a journal entirely dedicated to this type of research, consistently publishing articles that summarize research using various methodologies

from within the field of education. A number of other noteworthy organizations are gaining considerable momentum in the form of funding and political support for their efforts to produce systematic reviews (Harlen & Crick, 2004). Most notable are the Cochrane reviews, which are now well-established within the medical field.

Criticism of systematic reviews are plentiful (see Suri & Clarke, 2009). Pawson, Greenhalgh, Harvey, and Walshe (2005) wrote one of the strongest of these critiques. Pawson et al. noted that the criteria for inclusion or exclusion of articles from the review can impose bias on certain types of research methodologies.

This systematic review used an inductive approach with the focus on generating theories from data collected about the subject (Saunders, Lewis, & Thornhill, 2012). The inductive approach allowed for the identification of all themes within the extant literature. The selection of articles for this research was based on four criteria. First, pre-2000 articles were excluded because of developments in course delivery. These developments were apparent in the works by Bacon (1983) and Kalisch (1979), which were later followed by a number of works that have helped drive some of this change (see Greenaway, 1997; Hopkins & Putnam, 1993). Second, articles must be written in English because of the lack of resources and time available for translation. Third, articles must have a recognizable referencing system. Limited restrictions were placed on what type of literature could be included, meaning that the review included organizational research documents and other unpublished research as well as any literature that had the potential to provide quality data. Fourth, the literature needed to be directly related to one or more of the following: sail training programs, sail training outcomes, sail training policy, sail training theory, or sail training research.

## Research Process

The research for this article was conducted in six phases.

**Article collection.** Initially, a search was conducted through different electronic databases, particularly those available through The University of Edinburgh (i.e., Edinburgh University Library Searcher, JSTOR, and Google Scholar). The keywords searched were anything related to sail training such as *sail training*, *sailing*, *voyages*, *adventure education*, and *tall ships*. The search resulted in 24 articles to be included in the study.

**Data collection: Initial reading.** Data collection and analysis consisted of an initial reading of the collected articles to gain a general understanding for the research in accordance with Gilligan, Spencer, Weinberg, and Bertsch (2003).

**Data collection: Secondary reading.** The secondary reading can be broadly categorized as open coding (Corbin & Strauss, 2008). For each article, a summary table was created. The initial table was piloted by checking for accuracy against the original article.

**Data validity check.** This phase consisted of a final reading of the article and comparison with the summary table to ensure data in the table were an accurate representation of the article. It also helped to minimize researcher bias.

**Initial data analysis.** First, basic data of the articles were collated. Second, a thematic coding method was used, as per Robson (2011), who stated that “thematic coding analysis [is] where the codes and themes emerge purely based from your interaction with the data” (p. 475). Third, the claims and discussions column was analyzed, which proved to be challenging.

**Secondary data analysis.** The final phase consisted of analyzing thematic findings using axial coding, the linking together of the categories that were developed during Phase 4 (Robson, 2011).

## Ethical Considerations

This study received ethical approval from The University of Edinburgh Ethics Committee.

## Results

The 24 articles used in this systematic review are marked in the reference list with an asterisk (\*). Of the 24 publications, two were from a philosophical perspective, meaning they did not report empirical work (Allison & Von Wald, 2013; Wojcikiewicz & Mural, 2010). The remaining 22 publications reported empirical work from 16 studies, showing that single studies produced multiple articles. For example, McCulloch (2002) used the research for his PhD dissertation in publications in 2004 and 2007. The analysis of data from the systematic review of the 24 publications resulted in findings related to the themes of demographic characteristics of sail training, research methodologies, process, and outcomes, each of which is described below.

### Demographic Characteristics of Sail Training

**Vessels.** Vessels of all rigs and sizes are represented in the research on sail training, and both small and large ships of all rigs are represented in individual articles and in the collection of articles. For example, the research by Allison, McCulloch, McLaughlin, Edwards, and Tett (2007) involved 17 vessels from around the world of all sizes and rigs; McCulloch (2004) used small boats; and Capurso and Borsci (2013) used a 61-meter brigantine.

**Participants.** The gender distribution was compiled for all the studies that provided gender data, and it was found that 58.43% of participants were female. However, this does not mean that both genders are represented roughly equally within sail training research. First, in some cases the program studies were for females only (e.g., Arbour, 2007; Grocott & Hunter, 2009). Second, some of the studies, particularly those with small sample sizes, did not have equal representation of genders among their participants. For example, the work of Grinkeviciute (2013) consisted of five males and one female.

The age of participants across all research studies is similar. Most are in the age range of 15–25 years at the time of participation in sail training. Allison et al. (2007) stated that the ages of their participants ranged from 15–25, and Hunter et al. (2013) stated that they had an average participant age of 16.48. However, participants in other studies may have been outside this age range at the time of data collection. For example, Cleland (2011) used subjects who participated in sail training voyages in 1985 who might have been more than 40 years of age at the time of the research but would have been between the ages of 17 and 23 at the time of participating in sail training.

Socioeconomic background of participants is not discussed in detail in any of the research, although two papers provided some of the basic demographic characteristics noted earlier (see Arbour, 2007; Hindle, 2014). Hindle (2014) briefly discussed the funding methods for participants and the socioeconomic status of the areas around the schools where participants lived. Of the 33 schools used in Hindle's research, 13 were from high socioeconomic backgrounds with none in the highest 20% and the other 20 were from low socioeconomic backgrounds with 15 in the lowest 20%. Although this information provides an idea of the socioeconomic background of the schools' pupils, it does not provide information about the socioeconomic backgrounds of sail training participants per se or a detailed breakdown of the demographics of those on board.

**Location.** There is limited variability in the location where research studies occurred, with all of the studies included in the review having a focus on vessels from Western countries. Western refers to countries that are predominantly European and also includes North America and parts of Australasia. Therefore, generalization beyond this context should be done with caution.

## Research Methodologies

Two articles were philosophical, and these are excluded from this section. Of the 16 studies remaining, 11 used mixed methods and the other five were quantitative. Of the 11 that used mixed methods, four were qualitative and the rest combined qualitative and quantitative data.

Six sources of data are present: logbooks, interviews, focus groups, observations, document analysis, and self-reported questionnaires (SRQ). SRQs are the most commonly used method for collecting data within sail training research. SRQs are used in 12 out of 16 of the studies and in four cases represent the only method used.

Although the overwhelming majority of the research used SRQs, the origin of these vary considerably. There is no universal questionnaire used by all of the studies, although there is evidence that some of the research utilized questionnaires adapted from other sail training research projects. For example, Hindle (2014) discussed the use of a questionnaire adapted from the work of Allison et al. (2007). In other cases, researchers went outside the sail training research to find questionnaires or information on which to base their questionnaires. Examples of this include Capurso and Borsci (2013), who used Bracken's (1992) self-concept scales, and Grocott and Hunter (2009), who used the Self-Description Questionnaire (SDQ III; Marsh & O'Neill, 1984).

Another common method used in the reviewed research is the interview, which was used in nine studies. For example, Finkelstein and Goodwin (2005) used a combination of open and closed questions as part of an interview, with questions focusing on predetermined categories such as demographics and social skills.

Observation was mentioned in six of the studies, although there was minimal information on the specifics of the observations and limited discussion of what the observations entailed. For instance, Finkelstein and Goodwin (2005) mentioned the use of observation, but then described nothing further in their method. Allison et al. (2007) demonstrated how they approached observation:

Associates were asked to record observations of a range of activities and situations aboard their vessel, including for example how trainees were dealt with on arrival, how safety briefings and technical instruction was conducted, how meals and other aspects of domestic life were arranged, and so on. (p. 15)

Chiu (2012) and Liu (2012) both used participant logbooks in their research. The logbooks used for both research projects came from the same participants, but were analyzed with different research aims and therefore provided different data sets. Chiu in particular discussed the use of the logbook extensively, adopting an open format as per Corti (1993).

Document analysis and focus groups each only appeared once. McCulloch (2004) used document analysis, which consisted of the analysis of organizational documents for the relevant sail training providers. Grinkeviciute (2013) used a focus group, which was "conducted in an open and semi-structured manner, and included questions about changes in natural behaviour and group dynamics due to researcher's presence on board and repeatedly completed questionnaires" (p. 8).

These findings show there is a heavy reliance on self-report data in the current sail training research. Further, in all cases except one, data were collected only from participants. Hindle (2014) is the exception, giving a questionnaire to the parents of participants in an effort to triangulate the findings.

**Philosophical research.** Of the 24 articles identified, two are philosophical (see Allison & Von Wald, 2013; Wojcikiewicz & Mural, 2010). Both used previous literature and research to discuss a number of points. Allison and Von Wald (2013) focused on the process elements (i.e., practices) of sail training, and Wojcikiewicz and Mural (2010) attempted to develop a framework for youth development based on the writings of John Dewey.

**Long-term research.** Of the 16 studies, seven performed some form of longer term research to study the longevity of the changes experienced by participants as the result of a sail training voyage. This mainly took the form of a delayed, postcourse SRQ or an interview 3 or more months after the completion of the voyage. For example, Kafka et al. (2012) repeated their SRQ 4–5 months after the completion of participants' voyages. In other cases, such as the study by Cleland (2011), interviews were done with students who participated in courses as long as 26 years ago. This review shows longer term research ranges from around two months to 30 or more years postvoyage.

**Single or multivoyage research.** Of the 16 studies, 13 used a single sail training provider and of those, five used a single program. Allison et al. (2007) is at one end of the scale incorporating 34 voyages from 17 vessels, and a number of studies (e.g., Arbour, 2007; Chiu, 2012; Grinkeviciute, 2013; Henstock, 2012; Liu, 2012) are at the other end of the scale incorporating a single voyage from a single provider. The dominant approach has been to incorporate a number of voyages from the same provider.

## Process Themes

**Unique environment of sail training.** One emergent theme was that sail training programs provide a unique environment for education (e.g., Cleland, 2011; McCarthy & Kotzee, 2010; McCulloch, 2007; McCulloch, McLaughlin, Allison, Edwards, & Tett, 2010), with four of the 16 studies specifically discussing this claim. Cleland (2002) went further by linking specific sail training activities with experienced outcomes. McCulloch (2007) specifically asserted that sail training forms a unique environment for learning, and he provides evidence to support this idea by using themes of space, movement, and privacy as the main elements that contribute to the unique nature of the experience.

**Structured voyage design.** Four papers discussed the relationship between structured purposeful learning on sail training voyages and student-related outcomes (see Allison et al., 2007; Cleland, 2002; Henstock, Barker, & Knijnik, 2013; Wojcikiewicz & Mural, 2010). These studies each took a different approach, but showed general consensus that structured purposeful education on a sail training voyage is effective in regard to student outcomes.

Allison et al. (2007) described purposeful education as a conscious choice to have an activity within a program that is intended to elicit certain outcomes. The authors did not suggest all activities must be precisely planned or specifically designed, but did suggest a program is more likely to achieve specific outcomes with purposefully chosen educational experiences known to contribute to achieving such specific outcomes (Allison et al., 2007).

Other research in the review mentioned similar concepts. Capurso and Borsci (2013) discussed in detail the effects of activities on students and related these effects to the works of Bronfenbrenner (1979). Henstock et al. (2013) made vague suggestions of links between specific activities (e.g., experiential learning activities) and specific outcomes (e.g., improved team performance).

Cleland (2002) took this line of discussion further by specifying the outcomes experienced by students and relating them back to specific sail training processes based on the activities in which students participated. This approach of connecting process/sail training practices to eliciting particular outcomes can provide the basis for further research of interest to providers.

## Outcome Themes

**Personal.** The strongest theme related to the outcomes of sail training is the reported experience of personal change following participation in sail training programs. Of the 16 studies, 12 found evidence of personal change. Grocott and Hunter (2009) found that "participants experienced increases in the esteem in which they held their feelings of global self-worth, opposite sex relations, physical appearance, emotional stability and mathematical self-esteem" (p. 455).

Hunter et al. (2013) found “. . . that participants who completed the voyage experienced elevated self-esteem” (p. 1960).

Additionally, data also suggest that benefits in personal domains are sustained over time (see Cleland, 2011; Grocott & Hunter, 2009; Hunter et al., 2013; Kafka et al., 2012). Hunter et al. (2013) also discussed the sustained effect of this change in self-esteem: “Study 2 replicated these results and further revealed that (a) elevated self-esteem was still apparent over 12 months; and (b) perceived self-efficacy and belonging each made a unique contribution to these findings” (p. 1960). Capurso and Borsci (2013) contradicted this finding, which is discussed in the following section.

**Social.** Another theme evident from data relates to participants’ experience of social change following their voyage, with 12 of the 16 studies reporting benefits in social domains. Social findings are evident in the research by Finkelstein and Goodwin (2005):

The data showed that nearly all the respondents (94%) claimed the voyage assisted them to cultivate friendships with people from different backgrounds. They reported they felt more successful in social situations, that they made friends more easily and communicated well with others. (p. 13)

Similar examples were illustrated by Allison et al. (2007), who stated that “analysis of the changes in trainees’ assessments of their own social confidence consistently shows that there is an increase in this measure between the beginning of a voyage and three months later” (p. 30). In addition, from the 12 articles reporting benefits in social domains, three found benefits were sustained over time. The most significant of these is the retrospective study by Cleland (2011) in which participants completed their voyage between 2 and 36 years ago. One study found no sustained changes to social benefits (see Capurso & Borsci, 2013).

## Discussion

### Demographic Characteristics of Sail Training

Three demographic characteristic issues are evident in the literature included in this review. The term *demographic characteristics* is used here to encapsulate these aspects: vessel size and rig type, age and gender, and socioeconomic status.

First, Allison et al. (2007) found that the vessel size or rig type does not affect program outcomes. This review provides support for this notion, particularly related to themes of the experience of personal and social change outcomes. Twelve studies found personal and social outcomes related to sail training programs, and each study included vessels of different sizes and rigs.

Second, issues related to age and gender do not feature frequently within sail training research. Finkelstein and Goodwin’s (2005) study is the only example with a significant gender focus. The authors suggested that gender has an effect on participants’ experience, whereas Hunter et al. (2013) stated the opposite. Evidence is minimal and contradictory in this area and hence further investigation is needed before claims of significance can be made.

Third, there is a notable lack of information related to relationships between socioeconomic status and sail training. Hindle (2014) gave a brief description of the socioeconomic environment around the schools of the sail training participants, noting that the majority of participants were from low socioeconomic areas, but not making significant claims related to socioeconomic status and sail training. Further research into Class Afloat, the sail training program used in the Cleland (2002) study, shows that current tuition fees are C\$45,000 (see <http://www.classafloat.com/section/join-our-crew/tuition-fees>). Other programs such as the 10-day voyages on the Spirit of Adventure in New Zealand cost around NZ\$1,900 (see <http://www.spiritofadventure.org.nz/voyages/10-day-youth-development-voyage>). Without further investigation, it is

not clear whether these fees are high or low relative to similar levels of activity and whether participants are from high socioeconomic backgrounds or gain considerable funding from other sources. Funding for sail training activity surely has a role in participation, but limited data on the socioeconomic backgrounds of participants or on any patterns of relationship between socioeconomic status and sail training allow for no substantive conclusions to be drawn.

## Research Methodologies

This review highlights two methodological critiques for the current sail training research: overreliance on self-report data and generalizability of findings. There is a heavy reliance on self-report data, and this can be problematic. Though relatively easy to acquire and rich with information, SRQs are subject to skepticism: "We were aware that the questionnaire, at best, provides 'soft' data, perhaps better than mere opinions with no data at all, but vastly inferior to most other kinds of data" (Podsakoff & Organ, 1986, p. 531). Self-report data can be affected by the nature of the respondent unrelated to the subject under investigation (Robson, 2011). This includes individual variables such as cognition, participants' past experience, personality, and current mood. These critiques demonstrate the potentially problematic nature of the heavy reliance on self-report data in sail training research. A number of other data collection methods for which data are not reported by the participant have been used effectively in research on other activities, and these have achieved similar outcomes to sail training (see Qiao & McNaught, 2007).

The second critique relates to how researchers have approached the generalizability of findings. Some of the sail training research makes generalized statements beyond the scope of the research:

Taking into account the results of this study combined with the literature detailing the influence of motivation, confidence, social networks and academic self-concept on engagement it can be concluded participation in a structured sail training programme containing key activities has a positive effect on engagement with learning and education that can be of benefit to students involved with school, university, TAFE who are at risk of disengagement. (Henstock, 2012, p. 80)

Similarly, Capurso and Borsci (2013) claimed, "Even brief sail training programmes, headed by good inland preparation activities, can have marked positive short-term effects on the participants' Social and Competence self-concepts" (p. 22). Though evidence exists to support the findings of their current research, the generalizations extend beyond the scope of the research.

The idiosyncrasies of each vessel and crew present a particular challenge to the generalizability of findings, as pointed out by McCulloch (2002). Representative sampling may help to achieve more generalizable results (Falk & Guenther, 2006; Schofield, 1993; Watt & van den Berg, 1995), yet the ability to achieve a representative sample in sail training may prove challenging. Not only are the populations of providers, voyages, and participants involved in sail training and sail training research relatively small in number, but also the people involved in sail training are a self-selecting sample of the wider population of young people, and those who agree to participate in research are normally self-selecting. These issues of potential sample bias are unavoidable, but should be noted (Alreck & Settle, 1985; Rogekberg, Luong, Sederburg, & Cristol, 2000).

## Process Themes

**Unique nature of sail training.** There appears to be a theme in the sail training research regarding the unique nature of sail training experiences. The unique environment of educational experience is not a new area of study within the education world. Higgins, Hall, Wall, Woolner, and McCaughey (2005) identified over 200 articles concerned with learning environments, addressing the relationship between the educational environment and student learning.

Some of the current sail training research suggests that the learning environment used for sail training is unique (Cleland, 2002; McCarthy & Kotzee, 2010; McCulloch, 2007; McCulloch et al., 2010). McCulloch (2007) suggested, "It is that combination of limited space and restricted privacy, the movement of the vessel and the inescapability of the whole experience that makes living at sea so profoundly different from any dry land context" (p. 300). Prijoan Vives' (2013) work seems to support this notion, indicating that a subtle relationship exists between the ship and its crew.

However, the characteristics that are described as making the sail training environment unique could be applied to a number of other experiences. For example, a long-distance train journey would combine limited space, restricted privacy, constant movement, and inescapability. Similarly, this applies to a wilderness journey for which participants live in a tent and are constantly moving day to day.

Allison et al. (2007) suggested that "sail training experience transcends national and cultural boundaries and is not much influenced by the size or rig of the vessel" (p. 6). While aspects of sail training are different than those in other learning activities (e.g., the boat itself), the claim that it is *unique* may need further investigation. In this regard, it may be helpful to consider the sail training environment in light of complementary research in similar areas such as wilderness expeditions (Allison, Stott, Felter, & Beames, 2011).

**Structured voyage design.** The research on sail training demonstrates that structured purposeful programs are more effective at delivering personal and social outcomes. A wealth of literature has been developed over the past few decades specifically related to adventure education that supports the idea that a purposeful structured program benefits outcomes (Bacon, 1983; Kalisch, 1979; Greenaway, 1997; Hopkins & Putnam, 1993; Priest & Gass, 2005; Veevers & Allison, 2011).

The suggestion that structured purposeful program design provides a more effective learning environment is not without contention. For example, some authors (e.g., Priest & Gass, 2005) suggest that a more structured approach to adventurous learning experiences is preferable. This position might be summarized as *experiences created and used for learning*. Others, for example, DeLay (1996), consider such approaches to be pseudo experiential learning and promote a purer form, which might be summarized as *experiences as the foundation for learning*.

However, the stronger the move toward structured purposeful program design, the harder it is to find empirical evidence to support this approach as providing a more effective learning environment. Only Allison et al. (2007) and Cleland (2011) provide some details on how specified outcomes may be related to specific process elements (e.g., Cleland, 2011, "Factors Contributing to Personal Growth," p. 48), which suggests this is an area for fruitful further investigation.

## Outcome Themes

The experienced benefits in personal and social domains post-sail training voyage is the strongest outcomes theme within the current research. Additionally, it was shown that this theme extends to the longevity of the experienced changes. Although Capurso and Borsci (2013) contradicted this theme by presenting their findings that showed no sustained effects, they also suggested their sample was not big enough to make claims about long-term effects: "We are not able to identify effects on the social and competence self-concepts after two months of sailing activities because our sample size is not large enough" (p. 21).

The findings of the current research raise a question about whether developments in personal and social domains are beneficial. Specifically, several researchers argued that raised self-esteem can lead to undesirable behavior (Baumeister, Campbell, Krueger, & Vohs, 2003; Karatzias, Power, & Swanson, 2001; Lambird & Mann, 2006).

Follow-up research by Kafka et al. (2012) demonstrated that participants who participated in a sail training voyage had increased levels of self-esteem and decreased levels of risky attitudes,

aggression, and racial and gender bias, showing that self-esteem increased positively in this case without an increase in socially unacceptable behavior post-sail training program.

Research in the field of adventure education is consistent with research in sail training regarding participants experiencing change in personal and social domains, creating further connections between the literature in sail training and adventure education. Hattie, Marsh, Neill, and Richards' (1997) meta-analysis of adventure education (primarily in Australasia) demonstrated the long-term positive effects of adventure education, which included the personal and social domains discussed in regard to sail training research. Their review involved a sample of 96 studies within adventure education. More support can be found in the work of Cason and Gillis (1994), who produced a meta-analysis of 43 studies and who suggested that "adolescents who attend adventure programming are 62% better off than those who do not" (p. 40). Their study also included social and personal domains similar to those discussed in this review.

## Conclusion

This research set out to conduct a systematic review of the literature on sail training with a focus on research strategies, process, and outcomes. The intent was to provide a single port of call for interested parties to access an overview of the current research on sail training. Additionally, the intention of this research was to identify themes across the current research. These themes were then related to each other and where appropriate related to literature beyond sail training. From this review, conclusions are as follows:

- (a) Participants experience change in personal and social domains post-sail training program. Support for this is provided throughout the literature for single voyages and providers and for multiple voyages and providers. Evidence also suggests that these experienced changes are sustained over time. This is consistent with findings from research about similar programs in adventure education.
- (b) Research on sail training relies heavily on self-report data and certain methodologies. Relying heavily on any one source of data or method of data collection can be methodologically problematic.
- (c) Structured and deliberate program design is more effective than an unstructured approach in achieving specific outcomes. This theme was demonstrated within the current sail training research and is supported by related research in adventure education.
- (d) The unique nature of sail training remains a repeated claim within the current research. Such a claim can be made about similar or related activities, for example, adventure education in general. However, what is unique about youth development through sail training remains unclear.

The current research has a limited focus on the role of demographic characteristics—such as gender, age, socioeconomic background, and class of vessel and rig—in the experience of sail training. Although contextual factors are often mentioned as descriptive characteristics of the experience, the role they play in the effects of sail training has not been adequately demonstrated nor sufficiently explored.

## Future Research

Current research suggests that purposeful structured programming is better at achieving outcomes, yet minimal research focuses on what processes elicit what outcomes. More research into the processes involved in sail training could provide valuable insights for the purposes of program design, practice, and policy. If providers need to structure and plan activities to gain better outcomes, it will be beneficial to understand sail training processes better and how they relate to outcomes.

The focus on using self-report data has led to the finding that sail training participants experience change in social and personal domains. Research that explores these findings by using methodologies and strategies other than self-report will be welcome additions to the literature. In addition, further research into the longevity, sustained nature of change, or connections to research design from the related relevant field of adventure education would be a positive contribution.

This review illustrates a theme in the current research of claims regarding the “unique nature” of sail training. It also discussed how this claim is not fully supported, because many of the characteristics of sail training can also be attributed to experiences that do not occur on a boat. This suggests that either sail training is not unique or that there is something going on that the research has not yet identified. Prijoan Vives (2013) discussed the nature of the vessel and its relationship with participants’ experience and suggested this is unique, whereas Allison et al. (2007) suggested that the experience is not necessarily related to the vessel or its rig. These views are not necessarily conflicting, but merit further investigation to understand the effect of the vessel size and rigging on the experience of participants and thereby to potentially articulate the unique nature of sail training.

This review shows that when socioeconomic data are included they are not necessarily relevant to the findings, which supports the idea that socioeconomic background of participants plays only a limited role in the current research on sail training. Future studies can include demographic characteristics of participants, as this will encourage consideration of any influence on findings and their generalizability. It may also be useful for future meta-analyses.

This review focuses entirely on research published in English since 2000. Further work summarizing research published in other languages and reviewing work prior to 2000 may be worth considering. Both of these areas for further research might usefully be approached in a progressive manner to confirm the potential value of undertaking the work prior to expending time and resources.

Finally, it is important to note that although the body of literature directly related to sail training is not large, there is evidence that it is growing and momentum is building. It will be useful to policy makers, providers, and practitioners for researchers to build on the nascent literature to continue the move toward coherent, cumulative approaches to further research. Making explicit connections between evidence-informed practice and practice-informed research in sail training would be useful for all involved in it.

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