# ASTO theory of change, evidence review & measurement framework

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## Theory of change

### What is a theory of change?

A theory of change is a map of causal links which seeks to explain why and how an intervention has impact. Effectively, it is a description of how we think change happens and it forms the basis for impact measurement, by helping organisations identify and prioritise outcomes for measurement.

This theory of change is based primarily on a workshop held at the ASTO annual conference 2017, at which around 70 sail training practitioners and experts reflected on how sail training achieves change for participants.  It is also informed by literature on sail training and sail training programme reports and was reviewed by experienced sail training practitioners and researchers.

### A theory of change for Sail Training

Sail training takes many of the components of other land based, outdoor adventure activities– such as overcoming challenges to achieve goals, working as a team, being isolated from the outside world and learning new skills– but with factors that can potentially make the impacts stronger.  While elements of these factors are shared with other experiential activities, the specific challenges and unique physical environment of sail training can result in a distinctive experience. We have called these factors 'boosters', though they could also be thought of as enabling factors, catalysers, mechanisms or a prism through which sail training activities should be viewed when considering outcomes.  We haven't ascribed boosters to particular outcomes because they work across the theory of change.  They have the potential to increase initial take-up and engagement in activities and contribute to stronger and longer lasting impacts.

The **boosters** we have identified are:

'Intense / accelerated' experience—because sail training is continuous and residential in the most fundamental sense (there is limited option to walk away once you are on board), benefits of activities might be intensified or seen more quickly than, for example, a regular weekly activity.  This is also linked to 'risk' and the 'real'-ness of the experience (see below), which may mean participants feel the impacts of participation more intensely.

'Real' experience—actions are seen as having real consequences with real purpose, rather than being abstract, virtual or invented for the point of learning.  The purpose of rules and boundaries, which may be challenging for some participants in everyday life, are clear.   In addition, the immediacy and 'real-ness' of the experience may mean that participants can immediately see their individual value and impact on the group.

'Risky' experience—the perception of genuine risk (though in reality risk is very limited) means that participants feel reliant on staff and their peers to successfully complete the voyage.  Participants have no choice but to put their trust in staff, and this is reciprocated and rewarded when participants are trusted with important responsibilities for the sailing of the ship.  The ability of staff to manage the degree of perceived risk means this can be adapted for different individuals or groups and therefore, where staff are skilful, be used as a tool to influence participants' experience abroad and response to the environment.  Feeling at risk or suffering physical

discomfort (such as sea sickness) may also create feelings of vulnerability which have a levelling impact—participants are literally all in the same boat and are more likely to support their peers.

'Different' experience— being in a truly new and socially diverse environment (with no prior contact with the sea staff and potentially as a mixed group of participants) may mean participants are more likely to lose pre-conceptions of the limits of their own abilities and address habits reinforced by their normal, everyday environment.  And because sea staff do not already know participants, they are able to challenge their perceived limits.  The unique nature of the activities involved in sailing can also have a levelling impact—individuals who are the most capable in other areas of life may be the least capable afloat, and vice versa.

'Isolated' experience – being totally away from home, without factors (like social media) that reinforce participants' normal, everyday behaviours or the ability to walk away, means participants are more likely to be present and reflective.

'Peak' experience – because of the intensity of the experience, memories may be stronger and therefore potentially have a longer lasting impact than comparable activities.

In the theory of change, we have grouped **activities** broadly into three categories.

**Self-knowledge and personal development**

Throughout the voyage, participants are set challenging but achievable goals requiring them to apply new skills in an environment that often takes them outside their comfort zone.  This can generate a sense of achievement that increases levels of self-confidence and self-esteem and in the case of sail training, this may be boosted by the successful completion of tasks with a degree of perceived risk attached, or because participants are trusted by staff with responsibility for tasks with 'real' consequences (ie tasks which impact the successful sailing of the ship).  Participants learn about their ability to have control (ie, sailing the vessel) despite challenging external variables that are outside anyone's control (eg, sea state or weather).

Completing tasks they didn't want to try or felt they couldn't complete, like unpleasant domestic chores or climbing aloft, and realising that they can cope with being uncomfortable / outside their comfort zone, can create increased resilience, personal-discipline and boost participants' belief in what they are capable of achieving.  Opportunities to reflect, like team debriefs, and to be listened to by staff and peers provide participants time to consider their achievements which can further cement positive personal development.

In the longer term, these factors can contribute to participants developing a 'can do' attitude, feeling more motivated or resourceful when they face challenges.

**Knowledge and learning**

During a voyage participants learn about a range of things including sailing skills, domestic chores (which may be a first for some participants), food hygiene and the environment.  In addition, tasks involved in sail training can require participants to employ critical thinking to solve problems.

Putting learning into practice can be more engaging than learning in environments like school where problems can seem abstract—on a voyage, participants can immediately see the impact of the decisions they make.  In good examples of sail training, staff employ techniques such as effective questioning to maximise this impact.  As a result, participants may have a stronger sense of purpose for learning and greater motivation to learn new skills.

In combination with the personal development outlined about, these experiences are likely to improve young people's aspirations and contribute to them be more engaged in learning.

**Social skills**

Having to live in close quarters—sharing living space, sleeping in the same room and eating meals together—is an intense social experience.   The result can be the creation of lasting friendships and an increased understanding of the need for patience, respect and tolerance of others in order create a positive social environment.

Participants also have to work effectively as a team facing common challenges (eg bad weather) to complete tasks necessary for the voyage.  The successful achievement of team goals helps participants value good team work and creates a stronger a sense of team/community.  On top of this, being in a 'risky' environment evokes feelings of vulnerability and discomfort which acts as a leveller intensifies the impact of the close social environment and team work—both because participants are more likely to feel reliant on their peers and staff for their wellbeing and safety, and because feeling vulnerable may mean participants lose 'masks' (bravado or other social identities).  Sharing feelings of vulnerability and mutual reliance can result in a stronger sense of equality, particularly where participants support each other through common challenges, like seasickness.  Participating in a voyage with people from diverse social or ethnic backgrounds can help bridge social gaps

This combination of intense socialisation, team work and the equality of social interaction results in a strong sense of community among participants, where social differences and reputations from 'normal life' become less important.  As a result, participants may have more respect for, and sensitivity towards, their peers; and social differences are more easily bridged.  Positive social experiences may also impact participants' sense of personal identity and promote self-awareness, as they begin to see themselves as they are seen by their peers and staff aboard, rather than the identities they hold in 'real life'.

**Quality of delivery**

This theory of change explains the potential causal pathways from activities to outcomes. However, as with any programme, good quality delivery of is important to achieving impact.  Quality can depend on the effective management of the 'Activities' column in the theory of change and more broadly, the quality of staff as facilitators and role models is an important factor in achieving outcomes.  This is particularly relevant in considering staff as role models, how young people feel when staff treat them with respect and consideration, and when they have to put their trust in staff in an unfamiliar, challenging environment.

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| *Sail training 'boosters'* | *Activities* | *What they learn* | **How it helps** | **Long term outcomes** |

**Sail training 'boosters'**

- 'Intense / accelerated' experience – continuous, residential, can't walk away intensifies

- 'Peak' experience – strong memories creating more lasting impact

- 'Real' experience – actions have real consequences and learning is less abstract

- 'Risky' experience – participants feel trusted with responsibilities; + feel vulnerable, creating greater sense of equality

- 'Different' experience – new environment, no baggage

- 'Isolated' experience – participants are more present and able to address normal habits

**Personal development**

Activities:
- Doing things you don't think you can do / doing things outside your comfort zone eg climbing aloft, overcoming seasickness
- Overcoming personal challenges to achieve goals
- Being trusted by staff + given responsibility with real consequences
- Doing things you don't want to do, eg domestic chores
- Following a routine

What they learn:
- Pride / sense of achievement
- Self-confidence / self-belief / self-esteem
- Self-reliance / independence
- Resilience
- Self-control / personal discipline
- Organisational skills + time management

**Skills**

Activities:
- Problem solving put into practice
- Learning and practicing new things
- Learning about the environment

What they learn:
- Tangible skills (domestic, sailing, others)
- Critical thinking skills
- Knowledge of / respect for the environment

**Social development**

Activities:
- Working as a team + supporting peers to achieve goals
- Meeting and living in close proximity with new people

What they learn:
- Value of teamwork + cooperation
- Respect for + understanding of others
- Expanded horizons
- Knowledge of different social groups + ability to bridge social differences

**How it helps**
- "Can do" attitude
- Higher aspirations
- More engaged in learning
- Better relationships

**Long term outcomes**
- Increased motivation and resourcefulness when faced with adversity
- Improved happiness / wellbeing
- Improved educational attainment
- Improved employability
- Improved long-term life chances
- Better engaged in communities / responsible citizens

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# Summary of evidence

Appendix 5 outlines a brief summary of the evidence that relates to the sail training theory of change. It begins with a general summary of the evidence and then goes into more detail around the individual parts of the theory of change. In summary we address two key questions:

- What evidence supports the link between the outcomes targeted by sail training and positive long-term impact?
- What evidence supports sail training being a particularly effective way to achieve those outcomes?

We have kept this section fairly short because it is not a core part of our brief but we hope it represents an effective summary, and could prompt a more in-depth analysis.

# Introduction to the measurement framework

The measurement framework is a set of methods that will help ASTO members test how well the theory of change is delivered (as far as possible) The ultimate goal of the framework is to both simplify and improve the data collected by the sail training sector.

The more detailed aims of the framework should be to:

- **Help ASTO members learn and improve.** The best activities will be those that are effective at delivering the theory of change for individual young people. By recognising this and collecting relevant data, organisations can learn about how to make this happen in different settings, and to recognise where programmes aren't working so well
- **Provide robust information that will influence stakeholders (including funders).** This will also allow ASTO members to **advocate for their work more coherently and consistently.**
- **Provide sector level evidence.** If lots of ASTO members are measuring the same things in the same way, it will save time and energy and one can begin to collect and aggregate the data into a picture of what the sector achieves together.
- **Provide accountability (to each other, to funders and to those using the services).**
- **Motivate people within the organisation, and potentially young people themselves.**

Furthermore, by asking for feedback, ASTO members will be helping to give young people more say over what services are available and how they are delivered.

## Broad considerations:

These measurement recommendations are influenced by some important considerations.

- ASTO members do not provide the same service to everyone. In reality, ASTO members are different they will want to express their own services and ways of working. While the theory of change is an attempt to capture the essence of the general model, it will always vary depending on the circumstances. This makes measurement difficult because what might be appropriate and relevant to ask in some circumstances may not be in others. However, the sector level theory of change and measurement framework is a useful starting point for them to think through how they are similar / different to other organisations in the sector.
- Data collection and analysis takes time. There's a risk of taking-up too much staff and service user time with data collection and data entry. We have therefore kept the proposed survey quite brief.

- Data collection and analysis needs to be relevant / meaningful. The system won't work if people don't believe the data is helpful or relevant to their work. Ensuring organisations have seen and understand the theory of change will help them understand why we are suggesting the things we are.
- Despite the potential benefits, not all ASTO members will be equally motivated to engage in the process. Hence our proposed approach below is focused on developing a solution in the most straightforward way possible.

The upshot of these points is the need to implement something that is; suitably generic to cover all / most activities; 'light touch'; and meaningful.

# Measuring activities and outcomes

This section proposes survey questions to measure the quality and impact of sail training voyages. Appendices 1 and 2 contain the draft surveys. Appendix 3 lists validated tools for organisations with an interest in examining specific outcomes in more depth.

## When to collect data

'Activities' are the things that happen on board. The 'activities' survey seeks feedback on participants' experiences and what they learnt on board and should be used at the end of a voyage.

'Outcomes' are the changes that happen as a result of activities. Because intermediate outcomes ('what they learn') are the changes that occur immediately or shortly after an activity has occurred, it should be possible to measure these effects immediately or shortly after the voyage has concluded.

In order to make 'outcomes' measurement more meaningful—ie, to assess whether a change occurred, rather than only measuring levels—it is useful to have a baseline to compare them against. As such, we recommend asking participants to compete the outcomes survey before they go on the voyage, for example by sending this to teachers or parents for participants to complete in advance, if possible; or if not, asking participants to complete before they set sail. Another option could be to compare results to a 'control' group—ie, to a group of young people who did not come on the voyage. However, to generate robust and meaningful results, a control group needs to have similar characteristics to the treatment group (those going on a voyage). We therefore recommend using a before and after approach.

Long term outcomes are changes that occur over a longer time period. We have not proposed a specific measurement framework for these changes, because of the challenges in attributing them to sail training rather than other factors. However, we have discussed potential approaches to measurement below.

## Activities

While measuring outcomes is an important indicator of what young people have learnt or how their attitudes have changed during a voyage, it can be equally important, and potentially more informative, to measure features of the core activities—the factors that *lead* to outcome and represent a good voyage. If the theory of change is accurate, voyages that score highly on activities measures are more likely to result in intermediate and long term outcomes for participants. Measuring activities will give an indication of the quality of the voyage and the likelihood of achieving outcomes.

Measuring activities can also produce more meaningful results, because activities are more closely within the control of organisations then outcomes, which are contingent on how participants respond to activities and depend on a range of factors, of which sail training is just one (though intermediary outcomes are less vulnerable to this issue than long term outcomes.

Based on the core activities identified in the theory of change, we suggest the following questions should be asked at the end of the voyage.

Answers will sit within the scale: Yes, definitely; Quite a bit; A little; Not at all.

| Activities | 'After' survey |
|---|---|
| I'm surprised at what I achieved | x |
| I overcame challenges to achieve goals [*AND/OR, I learnt to push myself*] | x |
| I learnt something new about myself | x |
| The staff and I trusted each other | x |
| I had responsibility for something important | x |
| Our team worked well together | x |
| I learnt something new about the environment | x |
| I learned about developing plans for solving a problem | x |
| I learned to stick to the ship's routine | x |
| I got on well with the others | x |
| *[Optional* - I learnt about *… | x |
| On a scale of 1-10, how likely is it you'd recommend [sail training / programme name] to a friend? | x |

*Organisations may choose to specify things they consider important, eg sailing skills, how to do domestic chores, food hygiene etc

Other questions (from the Youth Experiences Survey[1]) that could be included in the activities survey:

- "I tried a new way of acting around people" - this factor isn't made explicit in the theory of change diagram, though we note in the narrative: *Positive social experiences may also impact participants' sense of personal identity and promote self-awareness, as they begin to see themselves as they are seen by their peers and staff aboard, rather than the identities they hold in 'real life'*.  As such, you may want to include this question.

- "I became better at dealing with fear and anxiety"– being able to cope with fear and anxiety isn't an explicit factor in the theory of change, though it is an element of the activity (*Doing things you don't think you can do / doing things outside your comfort zone*) and it may well be a feature of sail training that you want to measure.  However the first question on the survey "I'm surprised at what I achieved" assesses a similar issue—whether participants learnt to go beyond the boundaries of their comfort zones to achieve something.

## Intermediate outcomes

Intermediate outcomes are the changes that occur immediately or shortly after an activity has occurred—they can include changes in attitudes, beliefs and skills.  We have called these 'what they learn' in the theory of change.

The table below lists the intermediary outcomes ('what they learn') from the theory of change diagram and suggests questions that could be used to measure whether a sail training voyage has resulted in a change for participants.  Ideally, these questions would be asked before and after a voyage, in order to measure whether there has been any change for participants.

Answers will sit within the scale: Yes, definitely; Quite a bit; A little; Not at all.

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[1] http://youthdev.illinois.edu/wp-content/uploads/2013/11/YES-2.0-Instrument.pdf

The table splits outcomes into three sections: personal development, social development and specific skill development.

| Intermediate outcome 'What they learn' | Suggested survey question | Before + after survey |
|---|---|---|
| *Personal development* | | |
| Pride / sense of achievement | *Covered in 'Activities' survey* | |
| Self-confidence / self-belief | "I feel I can achieve things if I put my mind to it" | x |
| Self-esteem | "I feel I have a number of good qualities" [Rosenberg] | x |
| *Self-reliance / independence* | "I find ways to achieve my goals [Adapted from YES] OR "If you work hard, you will get what you want" [Phillips and Springer] OR "To make a good decision, it is important to think" [Phillips and Springer] OR "I am responsible for what happens to me" [Phillips and Springer] | x |
| Resilience | "Setbacks don't discourage me. I don't give up easily" [Duckworth] | x |
| Self-control / personal discipline | "I can keep my self-control when I get angry with someone" OR "You can rely on me to do tasks, even if I don't enjoy them" | x |
| *Social development* | | |
| Value of teamwork + co-operation | "I work well with other people" OR "I enjoy being part of a team" | x |
| Respect for + understanding of others | "I try to understand how other people think and feel" [California Healthy Kids Survey] | x |
| Expanded horizons | *Covered below* | x |
| Knowledge of different social groups + Ability to bridge social differences | "I have things in common with people from different backgrounds" [Adapted from YES] | x |
| *Skills* | | |
| Organisational skills + Time management | "I am good at organising my time and not putting things off" [Adapted from YES] OR "I am good setting priorities" [Adapted from YES] OR "I can complete activities in the time allocated" | x |
| Critical thinking skills | *Covered in 'Activities' survey OR "*I am good at developing plans for solving problems" [Adapted from YES] | [X] |
| Respect for environment | *Knowledge of environment covered in 'Activities' survey —however you could ask specifically about how participants feel about the environment to see if this changes* | |
| Domestic skills, Sailing skills, Food hygiene, Knowledge of environment | *Covered in 'Activities' survey* | |

Sources (see 'Validated tools' section below):

Duckworth: Grit Scale - Duckworth, A. L., and Quinn, P. D. (2009). 'Development and validation of the Short Grit Scale (Grit-S).' The Grit Survey is used to measure perseverance for the achievement of long-term goals in individuals. It assesses 'grit', a character trait defined as a 'perseverance and passion for long-term goals'. http://www.authentichappiness.sas.upenn.edu/Default.aspx

Rosenberg, M. (1965) Society and the adolescent self-image. Princeton, NJ: Princeton University Press. Rosenberg's Self-Esteem Scale (RSES) is a widely-used 10-item scale which measures feelings of self-worth or self-acceptance. http://www.fetzer.org/sites/default/files/images/stories/pdf/selfmeasures/Self_Measures_for_Self-Esteem_ROSENBERG_SELF-ESTEEM.pdf

- Phillips and Springer: Self Efficacy Scale - Control - Individual Protective Factors Index, Self Efficacy sub-scale. The 7-item self efficacy scale measures an individual's feelings of control and responsibility over their own lives. http://www.performwell.org/index.php?option=com_mtree&task=att_download&link_id=200&cf_id=24

YES: The *Youth Experiences Survey,* Hanson and Larson (2005), was developed to evaluate the developmental experiences of school-aged adolescents. It can be used for a wide range of activities and has high reliability and validity. http://youthdev.illinois.edu/wp-content/uploads/2013/11/YES-2.0.pdf

## Validated tools

Validated tools are existing surveys/psycho-metric scales which have been designed by researchers to measure hard to capture concepts, like wellbeing or self-confidence. The validity of the tools comes in part from asking about the same outcomes in different ways—as such, the tool is only 'valid' is the full set of questions are asked. However, including the full set of questions for all the validated tools on all the sail training outcomes would result in a very long list of questions, which it is unlikely participants would want to complete. Our proposed survey therefore includes just one or two questions for each outcome. Where possible, we have taken questions from existing validated scales.

However, if an individual organisation has a particularly strong interest in one of the intermediary outcomes, they could use one of the validated tools to measure this specific outcomes in more depth.

## Long term outcomes

Longer term outcomes ('how it helps' and 'long term outcomes' on the theory of change diagram) occur are the sustained changes to individuals or organisations, as a result of a service or programme.

Measuring the longer-term impacts is the most challenging part of the measurement framework:

- Many outcomes will not be known for a long time (for example longer-term education and employment outcomes) and it is difficult to keep in touch with people after they have stopped using a service.

- There is rarely a single cause of a positive long-term outcome. Sail Training may be the spark that turns a young person's life around but other factors like school and family will still be important (this is referred to as the attribution problem).

This is why we focus on measuring intermediate outcomes, while drawing on the academic literature which helps us establish the link between what is achieved in the short-term (and is measurable) and what happens in the long-term (and is less measurable).

**Measuring long term outcomes**

Some of the long-term outcomes could be measured by assessing 'tangible' outcomes, like attendance rates, exam results etc.   Organisations could also consider contacting participants 6-12 months after a voyage and asking about:

- – How well participants feel they are getting on at school
- – Their aspirations for the future
- – How happy they feel in general
- – Whether they feel part of the community

If organisations were interested in measuring specific 'soft' outcomes (how people think and feel) in more depth, the table in Appendix 3 suggests validated tools which could be used to track changes in specific outcomes over time.

Measuring long term outcomes is discussed in more depth in Appendix 4.

## Measuring need: Is ASTO reaching its target audience?

Different ASTO members will have different target audiences; however it is important to acknowledge that the work will have the greatest effect if it engages young people at particular risk of not achieving their potential. If relevant to particular organisations, their evaluation framework should also include an approach to monitoring whether they are reaching the right audience. This is important for two main reasons:

- There is a risk that ASTO members are wasting its limited resources on service users who do not need as much help as others. To monitor this, ASTO members need to record whether it is reaching the right people; to satisfy both itself and funders / commissioners.

- Data on the needs of service can be linked to data on outcomes to look at whether ASTO members are more or less effective of helping people who are in different circumstances. This should lead to insights that help improve services, as well as stronger evidence that ASTO members make a difference to young people.

However, collecting this sort of data is complicated and potentially intrusive and we do not feel it is generally appropriate in many cases. As such our key recommendations are:

- That individual organisations are encouraged to specify their target audiences in their missions. Further than this, ASTO could undertake a survey of organisations asking them to estimate the proportion of their service users that meet certain needs – for example the proportion in receipt of pupil premium, the proportion disengaged from school etc. The results would be very tentative and efforts would be needed to ensure everyone was interpreting the questions in the right way, but the exercise might be helpful in providing an indication of who is being reached and how different organisations compare.

- ASTO encourages and coordinates the collection of post-codes from participants in sail training so that this can be linked to Indices of Multiple Deprivation data[2] to get a broad sense of the socio-economic profile of who is being reached by sail training[3].

- In situations where recruitment to sail training takes places through schools, organisations could explore whether pupil background data could be accessed from school records.

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[2] https://www.gov.uk/government/statistics/english-indices-of-deprivation-2015

[3] See http://www.streetleague.co.uk/Handlers/Download.ashx?IDMF=a87c5930-7c1f-41fe-b5a2-e568ea4d778f for an example of how this data can be used

## Qualitative research

While collecting quantitative data is an important part of impact measurement, it often does not give the full picture of why and how change happens. Qualitative data (stories) adds more depth and helps you understand a full range of answers and underpinning factors.[4] It also allows the voices of users to be heard

Potential qualitative approaches can be categorised as informal and formal:

- **Informal approaches** would be things like; a 'comments' box or board, where people can write what they think; or encouraging young people to feedback on social media.

- **Formal approaches** would be things like a regular user forum or organising focus groups, in which small numbers of users are taken aside and asked for their feedback on a programme or for their views on how programmes have (or haven't) benefitted them.

While neither of these will provide particularly robust evaluation data they will provide supporting information and help you to identify issues, learn and improve. And from a stakeholder and funder perspective, having feedback mechanisms like this in place helps provide assurance that an organisation is willing to actively seek the views of service users, and make changes where needed.

Increasingly researchers are making use of **social media** to collect data. Indeed, recent reports suggest that some young people are no longer engaging with email or text messaging and that to reach them we need to go through social media applications. Other organisations are adapting to this by undertaking social listening studies[5] or encouraging service users and beneficiaries to use specific hashtags on Twitter or Instagram so that information can be more easily harvested. This practice could be useful for ASTO as a low cost way to get feedback from young people to help build a picture of impact, as well as generate useful feedback. Of course, the information is not going to be particularly robust or reliable but it will tell you something and be a valuable resource for reporting.

## Sector benchmarking

While organisations should feel free to adapt the proposed survey to be as relevant as possible to their own programmes and objectives, if organisations use the same survey, ASTO could potentially collect and collate data from across organisations and create a database of sail training impact results.

There are several potential benefits from taking this approach:

- Collating data from across the sector will provide more robust evidence on the impact of sail training, which could be useful when talking to funders. Eg, if the majority of sail training programmes' data shows consistent increases in young people's self confidence after a voyage, this is more persuasive than the same result from a single organisation.

- While individual organisations' data should be kept confidential, ASTO could report back to its members the average results across the sector; or for organisations of a certain type (eg, across organisations working with young people from disadvantaged backgrounds). These sorts of sector *benchmarks* could be useful for individual organisations to compare their own data against and assess their progress.

- ASTO could also do their own analysis of the data and assess whether there is commonality in the features of voyages that consistently get the best results. In other words, by collecting data from lots of different organisations, ASTO may be able to learn about what makes a voyage successful in terms of outcomes.

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[4] http://www.thinknpc.org/publications/stories-and-numbers/

[5] http://www.smartinsights.com/social-media-marketing/social-media-listening/what-is-social-media-listening/

**Appendix 1: Before and after survey (Outcomes)**

 (please ask this before the voyage starts, or very near the beginning)

Please be as honest as you can! Everything you tell us is confidential and will be reported anonymously.

Thinking about your life, please tick the box that you think describes you best.  Only tick one box for each row.

- 

| | Yes, definitely ⚓ ⚓ ⚓ ⚓ | Quite a bit ⚓ ⚓ ⚓ | A little ⚓ ⚓ | Not at all ⚓ |
|---|---|---|---|---|
| I feel I can achieve things if I put my mind to it (or, 'If I try, I can do well at things') | ☐ | ☐ | ☐ | ☐ |
| I feel I have a number of good qualities (or, 'Lots of things about me are good') | ☐ | ☐ | ☐ | ☐ |
| If I work hard, I will usually get what I want | ☐ | ☐ | ☐ | ☐ |
| I am in control of what happens to me | ☐ | ☐ | ☐ | ☐ |
| When things go wrong I keep trying | ☐ | ☐ | ☐ | ☐ |
| When I get angry with someone I can keep calm | ☐ | ☐ | ☐ | ☐ |
| I will do tasks even if I don't enjoy them | ☐ | ☐ | ☐ | ☐ |
| I enjoy working with other people | ☐ | ☐ | ☐ | ☐ |
| I try to understand how other people think and feel | ☐ | ☐ | ☐ | ☐ |
| I get on with lots of different people | ☐ | ☐ | ☐ | ☐ |
| I get things done on time | ☐ | ☐ | ☐ | ☐ |
| I can find ways to solve problems | ☐ | ☐ | ☐ | ☐ |

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**Appendix 2: After survey (Activities)**

(ask at the end of the voyage, or shortly after leaving the boat)

Please rate whether you have had the following experiences. Only tick one box for each row.

| | Yes, definitely ⚓ ⚓ ⚓ ⚓ | Quite a bit ⚓ ⚓ ⚓ | A little ⚓ ⚓ | Not at all ⚓ |
|---|:---:|:---:|:---:|:---:|
| I'm surprised at what I achieved | ☐ | ☐ | ☐ | ☐ |
| I did things even though they were difficult | ☐ | ☐ | ☐ | ☐ |
| I learnt something new about myself | ☐ | ☐ | ☐ | ☐ |
| I trusted the staff and they trusted me | ☐ | ☐ | ☐ | ☐ |
| I had to do something important (for the ship) | ☐ | ☐ | ☐ | ☐ |
| Our team worked well together | ☐ | ☐ | ☐ | ☐ |
| I learnt a new skill | ☐ | ☐ | ☐ | ☐ |
| I learnt something new about the environment | ☐ | ☐ | ☐ | ☐ |
| I learned about solving problems | ☐ | ☐ | ☐ | ☐ |
| I learned to stick to the ship's routine | ☐ | ☐ | ☐ | ☐ |
| I got on well with the others | ☐ | ☐ | ☐ | ☐ |

| | |
|---|---|
| If a friend asked you about the Sail Training voyage what would you tell them about it? | |

**Appendix 3: Validated tools for measuring outcomes**

| Intermediate outcomes 'What they learn' | Specific indicator | Validated tool(s) |
|---|---|---|
| Pride / sense of achievement | People have increased motivation and activity. | Motivation can be measured by looking at a variety of attributes, including attitude to work or education. This includes: • Attitudes Towards Working Scale (Alfano 1973); • California Healthy Kids Survey (CHKS) includes 6-item meaningful participation in school scale. Absence rates at work or school can be indirect indicators of motivation. |
| Self-confidence / self-belief | People have increased confidence in their own capabilities | • Rosenberg's Self Esteem Scale (10-item); • Marsh's Selfconcept scale (10-items). |
| Self-esteem | People have improved feelings of self-worth | • Rosenberg's Self Esteem Scale (10-item); • Marsh's Selfconcept scale (10-items). |
| Self-reliance / independence | People have increased autonomy and control. | • Control - Individual Protective Factors Index, Self Efficacy sub-scale. Developed by Phillips and Springer 1992. • Duttweiler (1984) Internal Control Index (28-item). • Alternative locus of control scale (13-item) (Rotter 1966) • Locus of Control scale for children and adolescents (21-item) (Nowicki and Strickland 1971. |
| Resilience | People have improved resilience, grit and determination. | • Wagnild and Young's Resilience Scale (14-item); • Duckworth et al's The Grit scale (8- item) |
| Self-control / personal discipline | People have increased autonomy and control. | • Duttweiler (1984) Internal Control Index (28-item). • Alternative locus of control scale (13-item) (Rotter 1966) • Locus of Control scale for children and adolescents (21-item) (Nowicki and Strickland 1971. |
| Respect for + understanding of others | People have increased empathy | • California Healthy Kids Survey Resilience and Youth Development Module, items on empathy |
| Knowledge of different social groups + Ability to bridge social differences | People have improved attitudes to differences. | • Helms & Parham 50-item Racial Identity Attitudes Scale |

| Intermediate outcomes 'How it helps' | Specific indicator | Validated tool(s) |
|---|---|---|
| "Can do" attitude | Motivation+ Resilience, as above | • Wagnild and Young's Resilience Scale (14-item); • Duckworth et al's The Grit scale (8- item) |
| Higher aspirations | People have increased aspirations and feelings about the future. | • The Positivity Scale (PS) (15 or 5 item)<br>• (Narvaez 2006) 3- item aspiration scale<br>• 3-item goals and aspirations scale used in California Healthy Kids Survey (CHKS) This can also be captured through survey questions relating to desire to participate in education and employment. |
| | Improved aspirations for the future | • Three item Goals and Aspirations scale used in California Healthy Kids Survey (CHKS)<br>• Three-item scale used in in Longitudinal study of young people in England study.<br>• Questions in Department for Education's National Survey of Parents and Children: Family life, aspirations and engagement with learning<br>• Tellus 4 survey asks questions about participation in further and higher education, and employment. |
| Engagement in learning | | • California Healthy Kids Survey (CHKS) includes 6-item meaningful participation in school scale<br>• Absence rates from school |
| Better relationships | People have increased satisfaction with their family relationships. / | •Huebner's Multi-dimensional Student Life Satisfaction Scale 7- item family module (adapted to 5-item in NPC's Well-being Measure).<br>•The Office for National Statistics' Annual Population Survey contains a question on satisfaction with family life. |
| | People have increased satisfaction with their friendships. | • The Friendship Scale (6-item) (Hawthorne 2006)<br>• Huebner's Multidimensional Student Life Satisfaction Scale 9-item friendship module. |

| Long term outcomes | Specific outcome | Relevant validated tool or indicators |
|---|---|---|
| Increased motivation and resourcefulness when faced with adversity | People have increased motivation and activity | Motivation can be measured by looking at a variety of attributes, including attitude to work or education. This includes: • Attitudes Towards Working Scale (Alfano 1973); • California Healthy Kids Survey (CHKS) includes 6-item meaningful participation in school scale. Absence rates at work or school can be indirect indicators of motivation |
| Improved happiness / wellbeing | People have improved emotional well-being | • The Warwick Edinburgh Mental Well-being Scale (7 or 14-item) • Children's Society's Wellbeing Index • The Achenbach System of Empirically Based Assessment (ASEBA); • Goodman's Strengths and Difficulties Questionnaire (SDQ): a (25-item behavioural screening tool, including 5-items on emotional symptoms. |
| Improved educational attainment | Increased in levels of attainment at school | Passes and grades of exams |
|  | Improved attendance at school and educational programmes | Number of half-days absent |
| Improved employability | Improved attitude and motivation to work | • California Healthy Kids Survey (CHKS) includes 6-item meaningful participation in school scale • Attitudes Towards Working Scale (Alfano 1973) • Employment levels |
| Better engaged in communities / Responsible citizens | Improved willingness to be involved in community activities | • Questions in Understanding Society survey (wave 2) • Number of hours in the previous four weeks spent doing unpaid or voluntary work for any organisation • NSC 13-item scale measuring participation and helping other |

Other useful tools or sources:

Journey to Employment Framework: http://www.thinknpc.org/publications/the-journey-to-employment/

Inspiring Impact (impact resource repository and guidance): http://inspiringimpact.org/

**Appendix 4: Measuring long term outcomes**

**Tracking outcomes over time and the counter factual:** Longitudinal research involves tracking outcomes for a group of service users over a period of time (months or years). This can give a picture of the extent to which outcomes are sustained after young people complete their experience with an ASTO organisation. But maintaining contact and keeping young people engaged and willing to participate in measurement after such a long period of time can be difficult. It can also be time and resource intensive to do this with more than a relatively small group, so if ASTO or individual sail training organisations wanted to measure their impact on long term outcomes, we would recommend focusing on a sample of participants who could be contacted in the future.

As with the intermediary outcomes, these results will have more meaning if there is something to compare them to. The classic and most robust approach is the Randomised Control Trial (RCT), which mirrors the approach used in drug trials and the natural sciences of assigning people to a 'treatment group' who receive a service and a 'control group' who do not, and then measuring the difference in outcomes. We don't expect that a design like this would be possible for sail training organisations, as it would involve turning recruits away on a random basis.

Another option is to compare the outcomes of sail training participants with similar young people from the same community who do not join. This is more likely to show positive results but is a weak research design because the initial impetus to go on a voyage may be an indicator of a fundamental difference between the two groups.

Given the practical difficulties of maintaining contact with participants over time and the challenges of generating robust results about what can be attributed to sail training, if you are interested in longitudinal research, you might prefer this to be conducted by an academic.

**Testimonies from former service users:** Perhaps the easiest approach to looking at long-term impact is to talk to former service users. We expect that some of the organisations will already have anecdotal evidence of the impact of their work; indeed, former service users may be volunteering or working for ASTO organisations. This evidence is helpful because it brings peoples' experiences to life, but it is not seen as particularly robust because we don't know how representative the testimonies are. There is scope to make it more systematic by actually seeking out former service users and asking for feedback (good or bad). The value of this all depends on how easy it would be to reach and engage them.

**Use of data labs:** Possibly the greatest potential for accessing robust data on long-term outcomes is through official datasets. Data labs aim to allow charities to access official government data about the outcomes their service users achieve. For example, the Justice Data Lab project run by the Ministry of Justice gives organisation working with offenders reports on the aggregate re-offending rate and frequency of re-offending for a group of beneficiaries, without compromising the privacy of individual service users. NPC is advocating for the creation of data labs in Employment and Education, and the education lab is currently in the process of being built. This could be used by ASTO organisations to track longer-term impact in terms of school engagement for their young participants.

**Appendix 5: Summary of evidence**

To review the overall evidence base we drawn mainly upon the findings from the report *'The impact of non-cognitive skills on outcomes for young people - Literature review' (2013), Education Endowment Foundation and Cabinet Office*'. This report includes a good overall summary of quality of the data around general activities for young people with a 'non-cognitive' focus. We have also drawn upon on the report from the Young Foundation, *'A framework of outcomes for young people' (2012)*

*'The impact of non-cognitive skills on outcomes for young people - Literature review' (2013), Education Endowment Foundation and Cabinet Office* summary findings are as follows:

There are signs of promise that non-cognitive skills have an impact on positive outcomes for young people, but causal evidence of impact on long-term outcomes is so far limited:

- Non-cognitive skills are associated with positive outcomes for young people, according to a large body of research. Factors such as self-control and school engagement are correlated with academic outcomes, financial stability in adulthood, and reduced crime.

- However, robust evidence of a causal relationship is limited. Less is known about how far it is possible to develop a young person's non-cognitive skills through intervention, or whether such changes lead to improved outcomes, especially in the long-term, e.g., employment.

- There is no single non-cognitive skill that predicts long-term outcomes. Rather key skills are inter-related and need to be developed in combination with each other.

Evidence is strongest in relation to skills underpinning academic outcomes:

- Children's perception of their ability, their expectations of future success, and the extent to which they value an activity influence their motivation and persistence leading to improved academic outcomes, especially for low-attaining pupils.

- Within school, effective teaching, the school environment, and social and emotional learning programmes (SEL) can play an important role in developing key non-cognitive skills.

- Outside of school, evidence from intervention studies suggests that programmes such as 'service learning' and outdoor challenging activities have low to medium effects on a variety of cognitive and non-cognitive outcomes. However, most of this evidence is from the US.

There are areas where further research is needed:

- Leadership, coping skills, and pupils' engagement with school can be promoted in young people, but there is no experimental evidence yet that their improvement has a substantial causal effect on other outcomes.

- Some non-cognitive skills including 'grit' and self-control correlate strongly with outcomes but appear to be more akin to stable personality traits rather than to malleable skills.

- There are gaps in the evidence because many studies define and measure non-cognitive skills in disparate ways, assess them in isolation, and focus on short-term outcomes. Priorities for future research should be to explore how skills can be transferred between areas of a young person's life, and how far changes can be sustained in the long term.

| What they learn | What evidence supports the link between the outcomes targeted by sail training and positive long-term impact? | What evidence supports sail training being a particularly effective way to achieve those outcomes? |
|---|---|---|
| **Personal development** | | |
| Self-confidence / self-belief / self-esteem<br><br>Self-reliance / independence | [i] Enabling young people to recognise that they can make a difference to their own lives, and that effort has a purpose, is important to key outcomes such as career success<br>[ii] Young people are more likely to do well at school if they have self-belief, self-efficacy and agency – that is, if they believe they can avoid risky behaviour, and that events result primarily from their own behaviour and actions.<br>[iii] Correlational studies have shown that self-efficacy is associated with positive outcomes including psychosocial functioning in children and adolescents<br>[iv] Self-efficacy is associated with better health behaviours<br>[v] Self-efficacy is associated with higher academic achievement and greater persistence | [vi] One of the outcomes improved by outdoor programmes and where the improvement was maintained / increased after the programme included locus of control.<br>[vii] [viii] Improvement in self-esteem was demonstrated following a long sailing voyage |
| Resilience | [ix] Problem solving, alongside resilience, provides young people with a 'positive protective armour' against negative outcomes associated with risky life events.<br>[x] [xi] [xii] [xiii] Correlational studies have shown that the coping strategies children and adolescents employ to deal with stressful situations are associated with their psychological and academic outcomes | [vi] One of the outcomes improved by outdoor programmes and where the improvement was maintained / increased after the programme included coping skills<br>[xiv] Findings revealed that increased resilience was maintained five months following the voyage. |
| Self-control / personal discipline | [xv] Self-discipline is a vital factor in building academic achievement, significantly better than IQ<br>[xvi] Regulating emotional behaviour is correlated with higher wages<br>[xvii] Positive correlations between grit (a non-cognitive trait, based on an individual's passion and perseverance for a longer-term goal) and positive affect, happiness, and life satisfaction<br>[xviii] Grit is associated with positive outcomes in a number of correlational studies including academic success<br>[xix] Greater childhood self-control has been associated with better physical health, less substance dependence, higher personal finances, and fewer instances of criminal | [i] Lifelong skills were learned through the challenges of the sail programme, including self-discipline. |

| What they learn | What evidence supports the link between the outcomes targeted by sail training and positive long-term impact? | What evidence supports sail training being a particularly effective way to achieve those outcomes? |
|---|---|---|
| | offending in adulthood<br>[xx] Self-control is a significant predictor of attainment even when prior achievement is taken into account | |
| Organisational skills + time management | [xxi] Regression analyses showed that 2 time-management components were significant predictors of cumulative GPA and that time-management practices may influence college achievement.<br>[xxii] Students who perceived control of their time reported significantly greater evaluations of their performance, greater work and life satisfaction, less role ambiguity, less role overload, and fewer job-induced and somatic tensions. | |
| **Social development** | | |
| Value of teamwork + cooperation | [xxiii]A meta-analysis of the efficacy of youth work highlights key aspects of quality that are significantly associated with improved outcomes, including a focus on life skills (young people reporting that they acquire skills such as teamwork, leadership, and conflict resolution). | [xxiv] The experience of sail training does have a positive impact on civic identity formation: it produced young people who valued teamwork and cooperation<br>[i] Lifelong skills were learned through the challenges of the sail programme including team building<br>[xxv] 90% say they are better team players as a result of a voyage |
| Respect for + understanding of others<br><br>*Please note that evidence for this outcome has been harder to come by* | [xxvi]Older children derive particular benefit from activities organised outside school, over which they have greater ownership/efficacy, can engage with others on equal terms and which is seen to have a greater 'authenticity in the adult world'<br>[xxvii]An evaluation (2015) of the National Citizen Service (NCS) (an initiative that brings together young people aged 15-17 from different backgrounds, giving them the chance to undertake a programme of personal and social development and community action) shows that the program has a positive impact on participants' perceptions of social cohesion in their local area. | |

| What they learn | What evidence supports the link between the outcomes targeted by sail training and positive long-term impact? | What evidence supports sail training being a particularly effective way to achieve those outcomes? |
|---|---|---|
| Expanded horizons<br><br>*Please note that evidence for this outcome has been harder to come by* | [xxviii] The 2015 NSC evaluation shows that the program has a positive impact on the participants' perceived ability to have an impact on the world around them as well as knowing how to tackle a problem in their local area. | |
| Knowledge of different social groups + ability to bridge social differences | [xxix] Importance of good communication for a successful transition to work or training, for independence and to access a range of life opportunities<br>[xxx] Evidence that students' social-emotional skills can have positive effects on later school performance<br>[xxxi] Positive correlation between measures of children's social and emotional skills and measures of later psychological health<br>[xxxii] Social-emotional learning interventions had a positive effect on attitudes, positive social behaviour, conduct problems, emotional distress and on academic achievement.<br>[xxxiii]'Non-cognitive skills' are important for a host of outcomes, including attendance and post-16 participation in learning, employment status and wages, health and risky behaviour, likelihood of obtaining a degree. Non-cognitive skills included persistence, attentiveness and a range of 'social skills' such as getting on with others, truthfulness, and asking for help willingly<br>[xxxiv]A meta-analysis of the efficacy of youth work highlights key aspects of quality that are significantly associated with improved outcomes, including positive relationships (young people reporting developing warm and trusting relationships) | [xxxv] Young trainees who participate in off-shore sail training programmes show measurable improvements in social confidence and their ability to work with others and the benefits are sustained over time after the voyage experience.<br>[xvii] The experience of sail training does have a positive impact on civic identity formation: it produced young people with enhanced social skills, increased levels of trust in others, and who knew how to bridge social differences<br>[vi] One of the outcomes improved by outdoor programmes and where the improvement was maintained / increased after the programme included behavioural conduct<br>[xx] Over 80% say they are better communicators after the voyage<br>[xxxvi] Sail training has positive benefits in terms of participants' social confidence and their self-perceptions of capacity to work collaboratively with others. |
| **Skills** | | |
| Tangible skills (domestic, sailing, others)<br><br>*Please note that evidence for this outcome has been harder to come by* | [xxxvii]The findings of a 3-year study of adolescents (n = 1,000) and their parents (925 mothers, 650 fathers) indicate that youth 'work experience' has some significant effects on familial relationships.<br>[xxxviii] Studies of the impact of work experience on adolescent socialization, defined broadly, suggest that 'work' has beneficial results that persist over time. | |

| What they learn | What evidence supports the link between the outcomes targeted by sail training and positive long-term impact? | What evidence supports sail training being a particularly effective way to achieve those outcomes? |
| --- | --- | --- |
| Critical thinking skills | [xxxix] Correlational research indicating a positive association between the use of metacognitive strategies and academic outcomes (Meta-cognitive strategies include setting goals, planning and problem-solving, being aware of one's strengths and weakness, monitoring one's progress and understanding, and knowing when and why to use certain strategies)<br><br>[xl] Problem solving, alongside resilience, provides young people with a 'positive protective armour' against negative outcomes associated with risky life events. | [xx] 70% of young people who undertake a voyage say their problem solving skills improve |
| Knowledge of / respect for the environment | [xli] Instructional games designed so that units relating to the environmental topics of wetlands, pollution, endangered species, population, energy, and individual effects on the environment showed significant results in changing environmentally responsible behaviour. | |

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