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## Designing effective research projects in outdoor studies

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### Abstract

The design of small-scale research projects, such as for dissertations or theses, is crucial to their success and efficacy. This chapter explores researcher responses to set parameters in creating workable projects, asking suitable research questions and planning for impact at the outset. We reflect on practical experiences of research design and the need to understand conceptual, philosophical and theoretical frameworks. Methods, methodologies and analysis within this initial phase are important, as are the frameworks for support and guidance through supervision and mentoring. Enablers, pitfalls, challenges and positive experiences are identified to support current and future researchers in outdoor studies.

Research needs to be systematic and rigorous but it also provides an opportunity to explore in depth a new or existing area of interest. As such the process of designing a research project should be exciting with the potential to create new knowledge, read widely about a chosen area, evaluate critically sources of information and previous research, and subject your final output to scrutiny. Although there are many resources available in support of navigating the research process (for example, Bell, 2014; Gilbert, Camiré & Culver, 2014; Locke, Spirduso & Silverman, 2014) these are relatively generic in nature.

This chapter will examine design principles for successful and effective research projects in outdoor studies through the lenses of academic researchers, including as supervisors

and managers of dissertations, doctoral research and commissioned research projects, and students and their experiences of carrying out research projects. It will identify enablers, pitfalls, challenges and positive experiences of design, underlying philosophical assumptions and our reflections on the student journey. We acknowledge an anglo-centric and UK perspective and recognise that degrees involving research may be structured and often defended differently across the globe. However, we aim to support current and future researchers in planning for success and efficacy in research projects in outdoor studies through a pragmatic and philosophical approach to design.

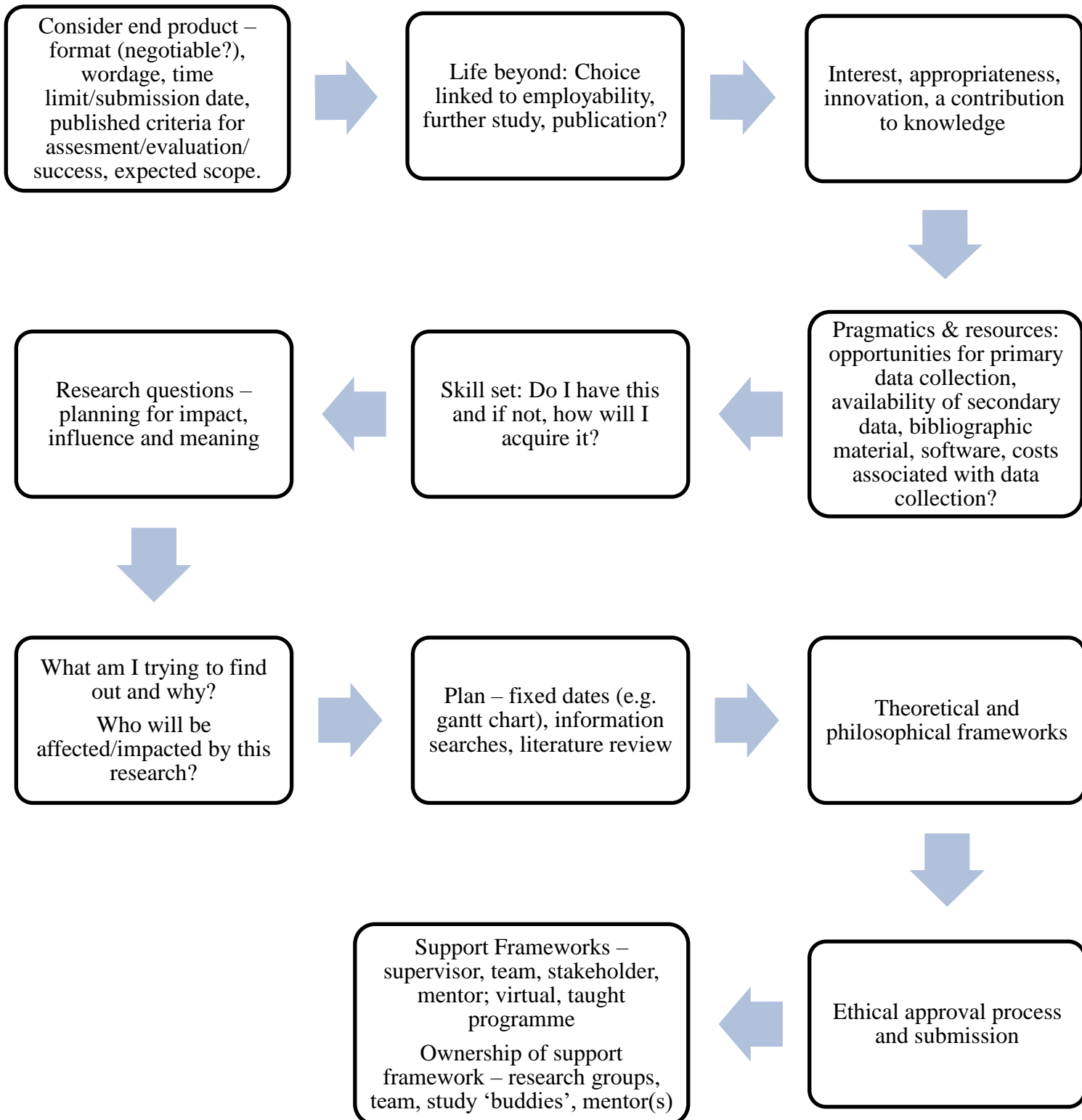
### **Taught degree research projects**

In many cases, higher education students of taught bachelor's and master's degrees have tended to concentrate their planning at the outset on the content, area of research interest and possibly the research questions. Whilst this can result in successful projects, our experience of students being able to translate these ideas quickly into secure research design is often lacking. In some Higher Education Institutions and research institutes, students may choose a project from a range of suggested titles/research areas, usually linked to a supervisor and reflecting his or her interests. These types of project may benefit from a clear research design although may compromise student autonomy or creativity in direction at a later stage.

Figure 1.3.1 identifies a pathway analysis for the design of taught degree research projects. It highlights the process and the areas of questioning and self-analysis that might be considered at each stage.

<Figure 1.3.1 HERE>

Figure 1.3.1: Pathway Analysis: Undergraduate and taught postgraduate dissertations and theses (open and closed choices of project)



## **Enablers**

A key enabler is the researcher or student themselves. Most taught degree courses encompass a dissertation module towards the end of the programme to provide students with the opportunity to design and conduct a substantial piece of independent, supervised research and to reflect critically on their findings with respect to current practice in the field although there may be scaffolded skill development in the form of smaller scale projects and/or a research methods module prior to this. Almost all undergraduates and postgraduates report that they consider research to be the most challenging and rewarding aspect of their higher education programme (Haigh, 2013). Many taught students felt they might not be able to complete their dissertation but on finishing felt, “a sense of pride and achievement – here it is, my own bound research project.” (‘Daisy’ - undergraduate student)

As such, the concept of the intellectually independent (or semi-independent) learner is assumed and means in practice that it is the student that drives and takes ownership of the project. It is important for the researcher to ascertain the parameters and expectations for the project and if these are not clear, to seek guidance and support in this area.

Reflexivity (Steier, 1991) is a key skill and accurate self review in terms of self analysis of skills and abilities at the outset and at various stages of the project is important, so that relevant gaps might be identified and supported.

Others play a key role. A supervisor, mentor or tutor might be appointed or act in that role – use him, her or them! Learning communities might be established by a tutor within a modular structure but a group established students themselves often constitutes a valuable framework of support through social media, online discussion groups, real time

meetings, work groups in a shared space or just social interactions in shared student residences. Friends and family can be a tremendous support, encouraging a student to persevere and maintain momentum, provide respite if necessary, ground them in real life and support through words and actions, for example in proofreading, through what is often a long and sustained process.

***Project area.*** “If your research focuses on a topic that you are passionately interested in, you are more likely to be motivated from the outset and your motivation is more likely to be sustained” (Haigh, 2013, p.62). Choosing a research topic or area if this is an option, can be daunting for some and we will return to this later. This, of course, needs to be balanced with the expected outcomes, parameters or criteria, availability of data and originality.

***Proposal/ethical approval.*** These may be considered challenges but they comprise key elements of the design process. A written or verbal proposal that needs approval by a more experienced researcher will give the impetus for articulating an overview of the project and the opportunity to gain feedback. A non-specialist perspective is often much valued by researchers as it provides the opportunity to articulate your research to a ‘lay’ person in comprehensible language and the potential for objective questions to be raised. For example, in respect of a project involving analysis of photographs that participants posted on social networking sites following an outdoor experience through content analysis and photo-elicitation, the ethics panel suggested recruiting participants after they had taken part in the experience and then inviting them to take part in the research if they had taken photographs. This more naturalistic approach also met with approval from the research subjects as one participant commented, “We took photographs anyway, so the

research did not influence or impinge on our experience” Ethical approval is usually required in some form for research projects involving humans, animals and sometimes, for environmental projects as well and you will need to state that your research has been approved by a panel or committee in the final output. It is worth exploring the form of this and timeline, so that it can be embedded in the research design.

### **Pitfalls**

Too narrow a research question or too broad a focus for the nature of the project (more common) are two of the main pitfalls that mitigate against successful projects. For example, the perspective of a single instructor on the value of challenge courses might be too limited but the place of outdoor learning in schools might be too broad for most research projects. However, this might be contingent on the nature of the data collection (for example, the single instructor might have experience of a number of contexts and the place of outdoor learning in schools might be illustrated by a case study – albeit ill-defined research questions). It is important to discuss your ideas with a more experienced researcher who has knowledge of the expected parameters to ascertain its feasibility and whether or not it is likely to meet the guidelines for the project.

Duplication of research might not be an issue as more data in time or space might give more credence to a previously defined question, issue or hypothesis. However, there are examples when a piece of research might have little relevance in this respect: for example, if a national governing body (NGB) is already reviewing their awards structure and has new proposals in place, there is little point in investigating people’s ideas on the current awards and suggesting changes at that time. If this is an area of interest, it might

be worth considering contacting the NGB to see if there is any further research that would be valuable to them (but see challenges below) thus increasing impact.

A research project will usually require collection or collation of primary and/or secondary data. It is important through a design process to ensure that data collection is feasible or accessible in the time available, or to have an alternative plan if it is not or if it is delayed for any reason. This might link to a fixed event (e.g. an adventure race, a residential experience, a volunteering opportunity). Ensure that you know what the deadlines are and if the event happens close to or after the event, a change of plan in the design of the project is required!

Time management is important but it might be not in your control, so planning a timeline for research may realise the full potential of a project. A gantt chart (<https://www.gantt.com>) or similar is useful in outlining the various stages of a project in the design process.

### **Challenges**

Stakeholder timescales/access and/or environmental variables and match of these to the project are all to be considered. Many projects in conjunction with a third party or stakeholder that are also are to be submitted as dissertations with a fixed timescale have been problematic or even unsuccessful due to a misalignment of deadlines. For example, teachers may not be able to facilitate data collection in a busy school environment, or answer emails or electronic surveys; Stakeholders, or the administrative functions within them, might not have time or devote time to retrieving systems data. If your research



involves a specific population (for example, disabled climbers) will you be able to access them and if you can, can you ensure that the ethics of your research will be acceptable? If you want to collect data on snowsports in an area with unreliable snow cover, what will happen if there is no snow in the year of your research? If it is on river paddling, what will happen if there is too much water or not enough?

The output of research is usually judged in terms of metrics – a figure or set of figures (see chapters 4.1, 5.1), criteria and/or descriptors. In the design process, it is worth building in time and planning to accommodate the compilation of the output, be it a dissertation, thesis, presentation, publication or other format. Too often the metric measuring the output does not measure the research undertaken because it concentrates on the final output, which is usually either text or visual in nature. Trevor - a postgraduate student wrote, “I wish I’d started writing earlier. I can’t believe the amount of time it’s taken to write” . A good verbal, written or visual output needs careful checking, proof reading and organisation. Let the end product justify the quality of the research.

Whilst self reflection is important questioning self belief can be problematic. Research projects are usually extended pieces of work and sustaining interest and quality throughout is sometimes difficult, particularly when there are challenges in execution, and this is often attributable to wavering self belief. Having a mentor or another individual or group that you can discuss this with is critical to maintaining momentum. Consider also presenting your work within a comfortable environment, for example, a department seminar or local conference, where you will get constructive feedback on your research is worth building into an ongoing design framework.

Inexperienced researchers are often bewildered by the terminology of the research process and confused by concepts such as paradigms, methodologies and methods and how and where they are positioned in varied theoretical frameworks. It is well worth spending time reading around your subject in books and journals to get a feel for different conceptualisations

### **Postgraduate researchers**

Many of the themes in the design pathway analysis (figure 1.3.1) are also applicable to doctoral (PhD or professional doctorate) and MPhil or MRes researchers although, normally, they will already have some experience of research design, albeit at a different level. However, doctoral programmes in particular generally are more extensive and are subject to a longer timescale than taught programmes and thus, incorporate the need for sustained research, which can challenge motivation, self-belief and work-life balance to a greater extent and possible changes of direction as a result of data, agendas, stakeholder requests etc that require re-focus or review.

For example, it could be that your research requires use of a certain instrument to collect the data and you cannot find a suitable one, or the one available is inappropriate for your context (perhaps aimed at adults rather than children, for example) and therefore, you need to spend time designing an instrument and testing it before data can be collected. Your agenda might have been changed by a political agenda out with your control, for example, the UK's exit from the European Union. You might find that a wider contact with an extended sample questions your approach, definitions or terminology. For

example, in a research project exploring young people's 'connection' with nature, even though the literature supports such an expression, through primary data collection it is evident that most of the sample population understand 'connectivity' to be via smart phones and therefore a change of emphasis to 'relationships' with nature is a more accurate reflection of the research (cf. Hayes, 2017).

There may be expectation of ongoing outputs: presentations to the research team, reports, teaching, publications and monitoring of progress. Thus, the need for doctoral researchers to have support in writing and development of confidence in writing, linked to academic identity, has been recognised (Fergie, Beeke, McKenna & Creme, 2011). The expectations that the research constitutes critical academic discourse and is a substantial contribution to knowledge illustrate a higher level of research than for bachelor's or master's students.

### **Commissioned research projects**

Most of the research design components will have been presented at the proposal or bidding stage of funded research and the project management may be a greater challenge to some than the research itself. The timescale and the integration of data collection, analysis and reporting usually is a priority for more experienced researchers who will be familiar with the research methodologies and methods, although it is important to check that the specific nature of the outputs expected by the commissioner/funder are specified. Livingston (2017) introduces the notion of a 'supercomplexity' paradigm to reflect the position of researchers undertaking commissioned research in shifting and challenging situations with multiple influences. It may be pertinent to ascertain the scope and flexibility of the research and level of consultation needed if there are challenges in implementing the accepted proposal or bid, and any flexibility in timelines.

## **Developing the design**

As mentioned above, terminology for some neophyte researchers can be challenging.

Beyond the initial focus of the research and framework for the particular process, there needs to be a definition of a question, hypothesis or issue. The means by which the research project develops is guided fundamentally by philosophical assumptions, or epistemological beliefs on the part of the researcher. Epistemology is the nature and construction of knowledge (what is there to know in the world and who can know). All researchers are to some extent guided by these principles and it is the adoption of their key assumptions that is central to becoming a competent researcher (Denzin & Lincoln, 2017). Thus, for the outsider to fully understand the research, acknowledgement of the philosophical assumptions of the research is essential (Sparkes & Smith, 2014). Indeed, the philosophical framework of the research is inseparable from the research strategy undertaken, and it may be useful to state explicitly the underpinning paradigm of the research in order to assess critically the value of its contribution (Guba & Lincoln, 1994). The chosen theoretical paradigm of any research thus forms the foundation for the work and is normative. Guba and Lincoln (1994, p.105) define a paradigm as the 'basic belief systems or world view that guides the investigation'. Thus, we conduct a research project using a particular paradigm because it encapsulates assumptions that we believe in about the world and supportive of our values (Sparkes & Smith, 2014).

Maxwell (2011) argues for the complexity of research and the notion that there are many paradigms,

..philosophical stances and assumptions, like theories, are lenses through which we view the world. These lenses are essential for our understanding, but the views they provide are fallible and incomplete, and we need multiple lenses to attain more valid, adequate, in-depth knowledge of the phenomena we study. (p. 29).

Researchers making different paradigmatic assumptions result in the world being seen differently, because the underpinning epistemology is intimately linked to the ontology (belief about the nature of reality; the filters through which we see and consider the world (Allison, 2000)), methodology (the approach to, and process of, gaining knowledge – a framework that helps you decide how you are going to engage with the world and the methods you will use). Consequently research may be conducted differently depending upon onto-epistemological underpinnings (Sparkes & Smith, 2014). Central to this process is the adoption of certain assumptions in relation to ontological, epistemological and methodological questions.

essentially, ontological assumptions give rise to epistemological assumptions which have methodological implications for the choices made regarding particular techniques of data collection. (Sparkes, 1992, p.14)

Ontological assumptions are individual's beliefs about the nature of the social world around them and the nature of their existence whilst epistemological assumptions refer to the nature of knowledge and how it is gained (Sparkes, 1992). In other words, the researcher needs to be aware of which paradigmatic assumptions or world view underpins their research, although this may change as they progress through their research.

The positivist paradigm emerged as the dominant lens with its epistemological assumptions of objectivity from Descartes in 1637. Quantitative researchers explain, control and predict phenomena and follow a realist ontology, assuming a single, uniform and objective reality exists, independent of a person. They adopt a dualist and objectivist epistemology, which means the researcher and the researched are independent and the researcher can study something without being influenced by it or it influencing them. They tend to favour an experimental or manipulative approach. A quantitative researcher may state an hypothesis or question in propositional form, which is then subject to testing empirically to accept or reject, verify or falsify, under controlled conditions. Data are normally numerical in nature and subject to statistical testing and the researcher is assumed to be value free and unbiased (see chapter 4.5).

In contrast, Kant in 1781 introduced the concept of the world being understood in ways other than the direct objective methods of positivism leading to the early developments in the qualitative school of thought. During the 1860s-1870s Dilthey further developed the qualitative school of thought and, in particular, the interpretive school, through his emphasis on 'understanding'. Interpretive researchers acknowledge the role that positivistic approaches play within the study of the physical world, but contest that they are too simplistic when addressing the social world (Sparkes, 1992). Through this interpretive paradigm, a qualitative researcher with a relativist ontology assumes that social reality is constructed by humans and can become multifaceted. Multiple, subjective realities exist in the mind that shape and construct social reality. Qualitative thinkers adopt a subjectivist, transactional and constructionist epistemology, whereby the researcher and the researched cannot be separated because values influence the interpretation (axiology). They see and try to understand the world from the participant's

perspective and may favour a hermeneutical and dialectical approach, acknowledging their assumptions and values through reflective accounting.

As Sparkes & Smith (2014) summarise,

The basic philosophical differences ... lead to quantitative and qualitative researchers developing different research designs, using different techniques to collect different kinds of data, performing different types of analyses, representing their findings in different ways, and judging the 'quality' of their studies using different criteria. (p. 14)

Within the paradigm debates of research, purists have emerged. The qualitative purist rejects positivism arguing that context-free generalisations are neither desirable nor possible, and that the subjective knower is the only reality. In contrast the quantitative purists maintain the need for social science inquiry to remain objective (Onwuegbuzie, Johnson, & Collins, 2009). It was Weber (1864-1920) who tried to bridge the gap between positivism and interpretivism, by stressing the importance of interpretation as well as observation in understanding the social world. Weber's initial intuitions have evolved to an anti-purist approach modifying the idea of a qualitative versus quantitative debate in favour of combining the approaches, a mixed methods approach.

A false dichotomy exists between qualitative and quantitative approaches and that researchers should make the most efficient use of both in understanding social phenomena (Creswell & Poth, 2017, p.176)

In s mixed methods (see Chapters 4.3 and 4.4) both inductive (theories are formulated by drawing general inferences from particulars or data) and hypothetico-deductive (testing a

priori hypotheses by collecting data and determining the degree to which the hypotheses are rejected (as in a null hypothesis)) or supported reasoning can complement each other (McAbee, Landis & Burke, 2017).

### **Reflections on the student journey in designing an effective research project**

We, as academics, encourage students on taught degree programmes for whom the dissertation is a mandatory component, to reflect on areas of personal interest in outdoor studies. From this and through discussion with peers and tutors, the objective is to be able to identify an area of interest suitable for a dissertation and to write a proposal, or to develop their thoughts further. For some this is easy and focused in the first instance but for others, “like so many (other) students we meet at this stage in the research process, (her) focus could at best be described as ‘all over the place’ “(Gilbert et al., 2014, p.62). All ideas can be developed and focused with support but we like to enable the student to own the idea if possible, not the tutor.

Some students have no ideas and tutorial time can draw out interests, motivations, future career pathways and pragmatics. One way forward is to suggest reading for example, previous dissertations (particularly the ‘suggestions for future research’ section), a recent major monograph in outdoor studies covering a range of areas (e.g. Becker, Humberstone, Loynes & Schirp, 2018; Humberstone, Prince & Henderson, 2016; Jeffs & Ord, 2017; Pike & Beames, 2013) or recent past issues of a relevant journal, for example, the *Journal of Adventure Education and Outdoor Learning (JAEOL)*. (See chapter 5.1). Another, linked to the literature, is to identify current key research topics of research groups and academics’ interests or recent or future conference themes.



Other students have identified a research area but it is far too extensive for a dissertation or to generate a research question. Recent examples of these have been: ‘the primary school outdoor curriculum’, ‘mountain biking, climbing or open boating as those are my main outdoor interests’, ‘environmental activism’ and ‘anxiety’. In this case, directing students to the literature and discussing ideas and their feasibility in terms of generating a research question and collecting data will help. Often, a student will come with two or more valid proposals, unable to decide between them and again, feasibility of the project in the time available, impact and originality are major considerations.

Even after identifying a research area, question(s) and philosophical assumptions, some students are overwhelmed by the task ahead. One way to break this down is to write or draw a simple flow diagram on one sheet of A4 paper (or equivalent) to develop the design further. Students may also be encouraged to keep a research diary as they progress and to write down their motivations and rationale for choosing the topic – this can become part of the dissertation as appropriate.

## **Conclusion**

Outdoor studies is a wide ranging area of pedagogy, research and practice. It is interdisciplinary and trans-disciplinary and the breadth of research areas it encompasses is substantial. It is often a challenge for an experienced researcher to narrow the focus and identify the appropriate philosophical assumptions, methodologies and methods and an appropriate design, let alone a neophyte student seeking to write a dissertation. It is hoped that this chapter provides support in the early part of the research process through

pragmatic steps, tips and a definition of terminology for researchers, which will result in the design of effective research projects. The research process is an exciting journey and it is hoped that this chapter has provided sound knowledge for developing your own research adventures.

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