**Reviewing the literature and formulating topics in coaching research**

John Lyle

**KEY CONCEPTS**

*Introduction*

The purpose of this short chapter is to explore the characteristics, strengths and weaknesses of reviews of academic literature, and how they may be used to generate research ideas in sports coaching. Critical analysis and interpretation of the literature can be a valuable and rewarding journey; providing both an overview of the current state of knowledge and a series of signposts to further study. On the other hand, it may point up the systemic limitations of academic enquiry to date in that field and generate a sense of ‘so much more to be done’.

This is not a guidebook on writing a literature review, whether from an undergraduate, postgraduate or experienced academic perspective. The underlying question is how the literature can be used to generate ideas for research. There is ample insight into what constitutes a sound review of literature and what a good research question might comprise. The issue is whether the latter is construed from the former. Does the review provide a precedent for the study? Our starting point, therefore, is that research should be ‘premised’ on something; there should be an academic context for a research study – why do this, why in this way, and why now? For this, we need to appreciate how reviews of literature are designed and written, and the extent to which they can be relied on for a comprehensive, unbiased account of the available literature.

The content of the chapter should be useful to the undergraduate student, although in practice the undergraduate dissertation process often makes limited use of systematic reviews of literature. Nevertheless, it is necessary to have an appreciation of compiling and interpreting reviews, and using these to stimulate research ideas. There are a number of existing texts designed to help the undergraduate student with the preparation of dissertations and written in a sports context (for example, Andrews *et al*., 2005; Gratton and Jones, 2010; O’Donoghue, 2010; Tenenbaum and Driscoll, 2005; Thomas *et al*., 2010). In this chapter we adopt a critical approach to the strengths and limitations of a number of types of literature review, and how they may be used to generate research ideas.

*Purpose of reviews*

Keary *et al*. (2012) provide a useful definition, characterising the literature review as providing “a basis for consolidating research findings within a specific area into a cohesive document that gives a clear indication of current progress, limitations and future directions of the research stream” (2012: 239). More concisely, Tranfield *et al*. (2003) identify the purpose of a review of literature as “to map and access the relevant intellectual territory” (2003: 207). However, there is no definitive list of purposes. These include scoping the research field, narrowing a research problem, creating a conceptual map, identifying potential variables for study, identifying gaps in the existing field, cataloguing common research methodologies, identifying key researchers and studies that have influenced the field, and generating new perspectives. As a result, researchers should be able to avoid repetition, conceive of potential new studies that would contribute to the field, and reinforce their familiarity with appropriate methods (Randolph 2009).

The reader needs to understand why a review might be written. For example, commercial clients are generally output-orientated(they want ‘answers’) and require client-focused, targeted, usually narrow questions. On the other hand, many researchers focus on what is termed ‘exploratory’ research, others on professional practice deficits, templates from other fields, or simply academic introspection. There is also government/funding body research in which the relevance of the study and accompanying methodological approaches are likely to be scrutinised very closely.

At this early stage, we need to distinguish between a stand-alone literature review in which the objective is to provide a comprehensive account of the research field, or part of that field, and the more selective supporting review of literature that normally accompanies an academic paper. Reviews of literature accompanying a published study may be selective and designed to demonstrate awareness of the area, key texts and trends, support for the rationale and methodology, and to show that the intended research will contribute something new to the field (Levy and Ellis 2006). It might be argued that the latter is a justificatory exercise designed to show the reader that the author is aware of recent and influential sources, in addition to introducing and supporting a key theory or method. Such a review might be considered more of a ‘rationale for’ the study in question. We might expect that these more selective and partial accounts would have had a catalytic impact on the generation of research ideas, but it is often written ‘after the fact’ and some caution needs to be exercised. In the main we are concerned with the type of comprehensive but focused review that is intended to provide an overview of the ‘state of knowledge’ in a particular field of study.

*Types of literature review*

It is helpful to distinguish between a stand-alone review of literature and one that accompanies published papers or a dissertation. This is important because the latter may be accessed by students as potential sources of research ideas. In addition, one of the challenges is to attempt to synthesise literature that may contain prescription, opinion, empirical studies, policy statements, and both primary and secondary sources, thus illustrating the advantages and disadvantages of the narrower systematic review. It brings reliability to the review but is likely to represent a small fraction of the academic writing available. The term ‘critical’ is often appended to the word review. This implies that some evaluative and appraising commentary can be expected, particularly about individual studies, but also about the strengths and limitations of the general coverage of the subject matter. It is partly this critical interpretation, in addition to the collation and integration of sources, that distinguishes the review from a simple catalogue of sources, usually termed an annotated bibliography.

Reviewing the literature may be a systematic or less systematic process. The former implies adhering to ‘systematic review’ practice (see Higgins and Green 2008) or comprehensive surveys of literature based on sound review practice. However, reviewing the literature may also be a partial process: for example, (a) finding a precedent for a ‘spark of an idea’, (b) confirming that there is sufficient existing literature to provide a ‘scaffold’ for an idea, (c) identifying methodological pitfalls or limitations in previous work, (d) comparing initial expectations with previous findings, (e) identifying contradictions, or (f) mapping the key authors.

A key distinction is that between narrative analysis of literature and systematic review. The systematic review is considered the most appropriate for policymakers in the health sciences, as it evaluates the weight of evidence in health-related interventions. The narrative review relies on the author’s evaluation, judgement and linguistic skills in synthesising the literature and providing a summary of the evidence. In their overview of literature reviews, Tranfield *et al*. (2003) point to the limitations of traditional narrative reviews: not being exhaustive, lacking a satisfactory mechanism for aggregating and collating the ‘messages’ from what are increasingly diverse and contradictory studies, lacking rigour, and biased by the researcher/reviewer’s purposes. The emphases, combination and integration of research outcomes, research methods, theories, or applications provide the ‘stamp’ of a particular review. Thus, a critical review of methodologies to justify a researcher’s approach is clearly different to an integrative and comprehensive review of outcomes intended to influence policy makers, or a critical review of theory developed in a historical context. You should be wary of the difference between ‘a persuasive argument’ and an unbiased account of the literature.

Systematic review is designed to produce transparent, reproducible (bias-free) reviews, most often associated with randomised controlled trials or interventions. This, of course, privileges the positivist paradigm, and is commonly associated with meta-analysis, which is a statistical procedure for synthesising findings in order to enhance the ‘power’ of single studies. One of the key elements in a systematic review is that the searching of the literature is comprehensive and the selection of studies is based on reproducible keywords and search terms, thus ensuring that the final choice of studies is not biased by the reviewer’s attempts to ‘make a case’. Organisations such as the Cochrane Collaboration establish rules and guidelines for systematic reviews (Higgins and Green 2008). The ‘rules’ of the systematic review have evolved systematic review tools that are acknowledged as the most convincing evidence in health-related research, and demand certain conditions: for example, common research questions, acceptable research methods generally interpreted as randomised controlled trials, and strict rules of inclusion that favour relevant interventions, populations, and rigorous methodologies. These rules often significantly limit the number of relevant studies. The systematic review (or any other stand-alone review) is a complex and sizable research project, not an adjunct to another paper.

There have been attempts to apply systematic review principles in fields beyond the health sciences: for example, management (Tranfield *et el*. 2003) and higher education (Bearman *et al*. 2012). The Campbell Collaboration promotes systematic review in education, crime and social welfare studies ([www.campbellcollaboration.org](http://www.campbellcollaboration.org)). The Evidence for Policy and Practice Information and Coordinating Centre (EPPI) has developed and applied these principles and approaches (statistical, narrative and conceptual synthesis) to public policy research ([www.eppi.ioe.ac.uk](http://www.eppi.ioe.ac.uk) ). The systematic review has been applied to a wider range of research questions, paradigms, methods and evidence (Gough *et al*. 2012). Thus the EPPI guidelines enable the researcher to rely on a systematic approach, without an overly restrictive set of inclusion criteria:

* An explicit search strategy (Databases, plus specialist websites, internet search engines, personal contacts; note in particular ‘research’ carried out for public bodies that may not be published or less easy to access)
* An explicit strategy for inclusion and exclusion
* Mapping and refining (describing the field)
* Appraising and synthesising quality (judgement on quality and relevance leading to an assessment of the weight of evidence)
* Synthesising study findings (This may involve statistical meta-analysis, narrative, or conceptual synthesis)
* A narrative (Structured narratives or summary tables, different types of research can be combined).

The non-systematic review relies on a different form of aggregating and interpreting evidence (that is, not simply the statistical evidence). This has been described as an ‘integrative review’ (Whittemore and Knafl 2005) and involves searching for patterns and interrelationships. It may be helpful to create a visual form of display of the evidence, before embarking on analysis and interpretation. Whittemore and Knafl suggest that analysis should comprise noting patterns and themes, clustering, comparing and contrasting, and identifying unusual patterns. It is important that the conclusion should address contradictory evidence, and seek for generalising statements that encompass lesser groups of evidence. A salutary lesson is that students generally have access to the short report or published article, which is an even-more condensed form of review, and differs considerably from a full ‘technical’ report (100 pages is the EPPI recommendation).

**PRACTICAL CONSIDERATIONS**

*Issues in conducting a review*

Most research methods textbooks address the mechanics of conducting a review, and provide specific advice on, for example, searching databases (Keary *et al*. 2012). No matter the type of review, there are some common steps or principles (Levy and Ellis 2006; Webster and Watson 2002):

(a) Identify the focus or purpose of the review. Is it a stand-alone review or supporting a specific piece of research? Can you focus the review in order to help identify keywords and shifting of sources?

(b) Create an auditable process (stop bias or acknowledge it). Identify the keywords (and combination of words) to be used in the search, the databases to be used, keep a record of the number of ‘hits’, and using individual sources to generate further sources should also be described.

(c) Create search parameters. What constitutes an acceptable paper? You may specify by date, scale and composition of research population, methods used, forms of analysis, or theoretical underpinning.

(d) Search for literature (note the difference between comprehensive, selective, representative, empirical, and eclectic reviews). Carry out the search remembering to record each step of the process. Likely databases are *Sport Discus*, *PsychInfo*, *Sociological Abstracts*, and *ZETOC*.

(e) Sort and classify sources. This is an inductive process that will help to interpret the literature. This may reflect older-newer, empirical-conceptual, strong-weak findings, or methodological procedures. Remember that papers are likely to fall into more than one category.

(f) Identify a means of comparing or aggregating findings. This will be helped by the previous step. This is particularly relevant if accumulation of statistical evidence is to be used; narrative analyses rely on comparing findings in the context of similar or dissimilar classifications.

(g) Analyse the evidence (for example, statistical or narrative). Create themes, linkages, argument strings, and overviews, and decide how to display your findings (this may include tables or illustrative diagrams).

(h) Provide an evaluative summary. It is important to relate any summative evaluation or overview to the purpose of the review. Incorporate an element of critical appraisal, and attend to the weight of evidence, the strength of the literature, and new insights.

A further issue is the quality of the sources being reviewed. Likely factors will be (bearing in mind the nature of the study) the quality of the journal, the peer-standing of the authors, its currency, how often it is cited by others (but consider carefully the distinction between a ‘supporting reference’ and an exploration and incorporation of ideas – in addition to the frequency of self-citation), and, in particular, the ‘strength’ of the findings. It is important to distinguish between concepts papers, in which the authors argue for the primacy of a particular interpretation or possible contribution of a theory or model, and empirical studies. There will also be factors associated with the methods employed. For example, does the sample population most appropriately illustrate the concepts involved; how well does the treatment/intervention mirror practice; is the measure of effectiveness convincing; is there a commonality of practice in the sample population of coaches; does the qualitative analysis delve beyond the accumulated statements of the subjects? In coaching studies a key question is the extent to which evidence is drawn from coaches’ realistic *in situ* practice?

The interpretation of the findings is an opportunity for critical appraisal. When reading the review, (a) do you agree with the conclusions? (which texts have been particularly influential in focusing the conclusions), (b) has the author acknowledged any interpretive bias, (c) how strong are the sources on which the authors rely, (d) have the authors re-interpreted the original sources, relied on secondary sources, or merely referred to the findings, (e) are the authors helpful in identifying unanswered questions, and (f) is it clear that the authors have adhered to good review practice in conducting the review.

The method of synthesising the research findings depends on the nature of the evidence. The systematic review attempts to aggregate comparable studies, whereas the narrative review may attempt to integrate findings from a more diverse range of studies. Another example is a realist synthesis (Pawson 1997), in which the researcher investigates the underlying factors or facilitating circumstances rather than the programme or intervention outcomes.

*Research questions*

Given the time and resources available to undergraduates, the most common approach is to replicate existing research in interesting, available or problematic contexts. In general there is a two-phase approach to the use of literature in an undergraduate dissertation, but in my experience this is rarely a genuine trawling for ideas. Having identified a subject in which they have some interest, students are often directed by a supervisor to an initial set of readings in order to clarify relevant concepts, widen their horizons, and begin to tease out a research question. They may then be asked to review a more extensive but more focused selection of readings to provide ideas for appropriate methods and procedures, and to begin to shape their expectations (all of this being dependent on the nature of the study). The final version of the review of literature in the dissertation is evaluated for the extent to which it demonstrates familiarity with the field of study (language, concepts, methods, theories, developmental status), provides adequate underpinning for theories and concepts on which the study relies, has an element of interpretation (identifies common themes, trends, gaps), and provides a basis for comparing the new study’s findings to existing findings.

It would not be unreasonable to argue that a research question satisfactorily executed should have a positive impact on policy or practice. However, this need not always be the case; clearly conceptual and theoretical research is also necessary. The following are some self-check questions about appropriate research questions. Can the question be satisfactorily addressed (feasibility, resources, available methodology and the competence to execute it)? Is the question couched in appropriate language? The focus in qualitative research might be about meaning, significance, emergent theory or a description of social phenomena, whereas the focus in quantitative research is likely to involve the manipulation of independent and dependent variables and the relationship between them. Can the question be subdivided into 5 or 6 sub-questions that will help to scope the methodology? Have you established that the question needs to be asked? Is there an element of originality? Will it lead to replicable, accountable research practice? Are you satisfied that the findings will add to theory, help to solve problems, or has practical relevance (although concerns about relevance, applicability or generalisability may not be a researcher’s priority)?

Although some research ideas may genuinely emerge from reading the literature, others owe their genesis to supervisors, first-hand practical problems, commercial interests, continuation of previous research, empire building, or opportunism. We might reasonably argue that questions are less likely to reflect a genuine gap in the literature and more likely to reflect a personal agenda. Researchers are constrained by familiar paradigms, and may also be conscious of the weight of existing research, and schools of existing research, or the influence of well-cited researchers (see Rangeon *et al*. 2012).

While it is rare for the research questions themselves to emerge directly from a literature review, the review can provide a working framework that will act as a catalyst for generating new ideas. The research questions are a final stage in a process that may begin with a literature review in which untested correlations between variables, new research populations or conceptual limitations are identified. We may most often depend on the reviews of other researchers, but engaging in the review process ourselves increases familiarity with the literature, identifies the weaknesses (not highlighted by more selective reviews), permits a more detailed examination of methodologies and allows us a more personal weighing of the evidence.

**STORIES FROM THE FIELD**

The literature associated with sport coaching is too diverse to support systematic review based on empirical findings. Although improving considerably in the past 15-20 years, many authors have noted its limitations – for example, inadequate conceptualisation, epistemologically driven sub-groups, and difficulty in associating coaching behaviour with athlete performance (Cushion and Lyle 2010; Gilbert and Trudel 2004; North 2013). Sport coaching is an enormously broad field of study (professional development, delivery practice, interpersonal relationships, social context, and coaching expertise – in addition to sports specific and performance-related issues). A realisation that coaching practice can only be understood at the level of the particular, its distinctive and disconnected domains, role-specific behaviour, and its human and emotional elements have contributed to a lack of unity and coherence in the literature. Indeed it might be argued that small groups of researchers have created self-justificatory literature sets. Without wishing to be critical, researchers in fields such as coaching efficacy, coach-athlete relationships, leadership, or systematic observation studies could usefully ‘take stock’ of the contribution of their literature to coaching practice or the continuous advancement of ‘coaching theory’.

There have been relatively few attempts at systematic review of coaching-related subject matter. These few studies have served to reinforce the not-uncommon conclusion that few papers satisfy the inclusion criteria. For example, in a review of the effectiveness of interpersonal coach education interventions Langan *et al*. (2013) could identify only four studies. Reviews have also been conducted into coach learning (Cushion *et al*. 2010), coach education (Lyle 2007b; Trudel and Gilbert 2006), mentoring (Jones *et al*. 2009) and professional development (Taylor and Garratt 2008; Griffiths and Armour 2011). The result is that literature reviews associated with sport coaching, while conducted within a set of systematic procedures, tend to be eclectic, narrative accounts. Indeed, the term ‘academic review’ (for example, Bailey *et al*. 2010) reflects the absence of a sufficiently coherent and methodologically sound, as well as dissociative, literature. Students should also note that the published sources may be distillations of reviews conducted elsewhere (for example, Martindale *et al*. 2005) and extensive use of literature sources is often used to scaffold a ‘case’ (for example, Duffy *et al*. 2011).

My involvement in a number of reviews (for example, Cushion *et al*. 2010; Lyle 2007a; Lyle 2009) has reinforced the lessons identified above. In fields of study such as coaching, there is limited consensus on research methodology and the absence of a consensual research agenda provokes a divergent rather than convergent analysis/review (Tranfield 2003). In addition, at this stage of academic writing in coaching, there is a significant amount of ‘prescription’, rather than weighing of empirical evidence. This leads to narrative reviews in which the net is cast widely to capture relevant sources from coaching and other fields, but the interpretations and conclusions require meta-synthesis rather than meta-analysis. In one review of decision-making research (Lyle and Vergeer 2013), a key-word search leading to over 400 sources, resulted in fewer than 30 empirical studies in a 20 year period, and these varied hugely in quality and focus. Griffiths and Armour (2011) provide an insightful summary, “(the) research lacks robustness, rigour, and a theoretical grounding from which to design future studies” (2011: 2), and “the quality of the evidence base was poor in terms of methodological quality and topic relevance” (2011: 4). This may be taken as a warning about the emphasis to be given to any summaries or generalisations within this research field.

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