



DECEMBER 2023

Introduction to Configurational Comparative Analysis

Background

Sport England has been investing in Place Partnerships (PP) (formerly known as ‘local-delivery pilots’) and other place-based approaches (PBA) as part of its strategy to address inequalities in, and barriers to, physical activity.¹ The approaches taken by PPs and other PBAs has been to support physical activity at different levels (for example, individual and community to organisational and infrastructure), taking into account the distinctive characteristics and insights of people who live and work there.

Whilst there are advantages of PBAs to supporting physical activity, the complexity and differences between places means that traditional models of evaluating impact are not always feasible. For example, it is not possible to isolate the effects a PP from other existing projects and public services in the local area, or to find a comparison site with exactly the same characteristics. Understanding the impact of these diverse initiatives requires alternative thinking and approaches.

Throughout 2023-25, a consortium will be building on the work of the National Evaluation & Learning Partnership (NELP) to carry out an evaluation of PPs and other PBAs to identify common factors that promote an increase in physical activity and reduce inequalities. The evaluation will be carried out using Configurational Comparative Analysis (CCA), a research method that has been recommended by the UK government to evaluate complex public health interventions, government policy and programmes.²

KEY POINTS

- ◉ CCA is a research method that compares patterns across case-studies and identifies which factors, or combinations of factors, lead to a desired outcome.
- ◉ It is a powerful complementary tool to explore the impact of complex and context-specific interventions, including the place-based approaches supported by Sport England.
- ◉ A key strength of CCA is that it can help illuminate different pathways to impact, recognising that multiple factors can lead to different outcomes.
- ◉ In the context of place-based approaches, CCA will help to identify what attributes, including features of different Place Partnerships and their wider contexts, lead to system changes that increase physical activity and reduce inequalities.
- ◉ The findings from NELP’s CCA are likely to have benefits to existing Place Partnerships, who can integrate lessons about what works into their ongoing evaluations and activities, and for future Sport England investments, for example, in helping to decide how to broaden and deepen their place-based approaches.

What is complexity?

Complexity can mean many things to many people. When we talk about complexity, we are recognising that the world is interconnected. For example, physical inactivity and inequalities emerge from multiple interacting influences. Understanding complexity is not a matter of explaining whether $A + B = C$, because when things, including ourselves, interact they start to behave in ways over and above the simple addition of their parts.

1. <https://www.sportengland.org/about-us/uniting-movement>

2. Magenta Book Annex A: Analytical methods for use within an evaluation (publishing.service.gov.uk)

What is Configurational Comparative Analysis?

CCA is a research method that integrates both qualitative and quantitative data to compare patterns across case-studies and identify which conditions, or combinations of conditions, lead to a desired outcome.

'Conditions' in this evaluation are the features of PBAs that may support physical activity and the contextual factors that influence them. This may include concrete aspects of a place, such as the level of investment or demographics, as well as less tangible features, such as productive collaborations between organisations or the meaningful involvement of community members.

By analysing the combinations of these conditions (sometimes called 'configurations') we can explore how outcomes are reached and identify both necessary and sufficient conditions for change.

Explaining 'necessary' and 'sufficient' conditions

Some conditions must be present for an outcome to occur - these are necessary conditions.

Some conditions are enough to lead to a particular outcome, although other different conditions may also lead to that same outcome - these are sufficient conditions. For example, if it is raining, I may still be dry because I have an umbrella. This is a sufficient cause of me remaining dry, but it is not a necessary cause because I could remain dry by being indoors or by wearing a raincoat.

In practice, it is usually *combinations* of conditions that are either necessary or sufficient to achieve a particular outcome rather than a single condition on its own.

Different pathways to outcomes

An advantage of CCA compared to other evaluation methods is that it can help illuminate different pathways that lead to outcomes, rather than assuming a singular cause-and-effect relationship. CCA allows for the possibility that a particular outcome may be achieved by multiple means or paths – a concept called equifinality (see Figure 1).

For example, many places may aim to support 'cross-sector collaboration' as an outcome and precondition for wider change in levels of physical activity. Some places promote this by devoting time and energy to building relationships with sector partners (condition 1). Others may co-locate their staff in partner organisations (condition 2). These are different ways of working towards the common outcome of better sectoral collaboration.

CCA also allows for the possibility that a single condition, for example, co-locating staff in partner organisations, may lead to multiple different outcomes across places - this concept is called multifinality.

Key terms associated with NELP Configurational Comparative Analysis

Cases: The geographical locations or 'places' in which groups of stakeholders are working towards the same objective of increasing population levels of physical activity and reducing physical activity inequalities. We could also look at projects within cases as separate analyses.

Conditions (or attributes): Important characteristics of place – both features of the approach and contexts. We can't include all possibilities in the analysis so need to select the most important ones based on existing knowledge in academic literature or held by stakeholders.

Configuration: A combination or set of conditions that are associated with a particular outcome (or absence of that outcome).

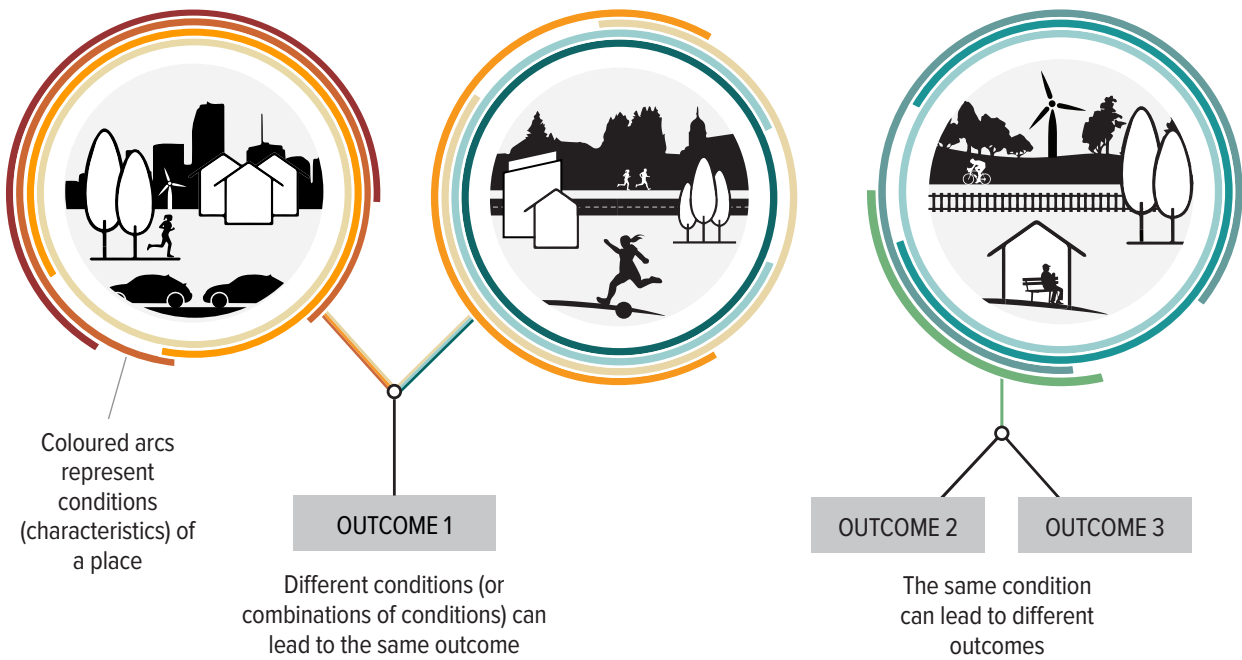
Outcomes: In this evaluation outcomes could be multiple – we are interested in short, medium, longer-term changes across multiple layers of social structure. For example, outcomes may occur as a result of changes in individual and community capabilities, policy, practice, roles and resources or population level changes in physical activity and reductions in inequality. We don't have the capacity or data to look at everything so we will need to prioritise.

Causal contribution: CCA allows us to be more confident about whether certain configurations of conditions are influencing the outcomes of interest. We may be able to distinguish between core conditions which must be in place and those which play a conjunctive or contributory role.

Complexity: Physical activity inequalities is a complex phenomenon, the outcome of multiple interacting influences.



Figure 1: Graphical representation of cases, conditions and outcomes in CCA



Steps in CCA

CCA uses a systematic methodology that follows a clearly defined set of steps as set out below. Importantly, the steps in the CCA process can be iterative, allowing back and forth, to ensure conditions tested are meaningful and relevant to those involved. The steps are set out in more detail in Table 1 (page 4).

Figure 2: Steps in CCA



What counts as a condition?

An important part of CCA is the process of deciding whether conditions are present or absent in each outcome being considered in the analysis (steps 2 and 3). This process involves clearly defining the outcomes, for example making explicit what qualifies as 'better sectoral collaboration', then drawing on the most appropriate data to judge the presence or absence of conditions in each case (calibration). Data may be quantitative or qualitative and include stakeholder perspectives.

How can CCA help place-based approaches?

The findings from the CCA are likely to have benefits to existing PPs, who can integrate lessons about what works into their ongoing evaluations and activities, and for future Sport England investments, for example in helping to decide how to broaden and deepen place-based work. It can also provide lessons for wider public health endeavours to increase physical activity including government policy. Finally, this work will contribute to the growing evidence base on CCA as a methodology to evaluate complex investments that can be applicable and beneficial in other areas.

Table 1: Steps in CCA

	What does CCA involve?	What does this mean for 'places'?
1. Theory of Change	<ul style="list-style-type: none"> Develop a Theory of Change or conceptual framework to inform decisions 	<ul style="list-style-type: none"> Conceptual framework developed by NELP Understanding of cases informed by stakeholders
2. Identify cases, outcomes and conditions	<ul style="list-style-type: none"> Identify outcomes of interest and conditions that are likely to influence each outcome Streamline, prioritise and minimise number of conditions to support a meaningful analysis 	<ul style="list-style-type: none"> Identify cases, including PP and other PBA (e.g., Commonwealth Active Communities, Core Cities) Work with cases and Sport England to agree common outcomes of interest Identify which conditions are relevant by drawing on data, existing knowledge and academic literature Streamline list of conditions
3. Data collection and calibration	<ul style="list-style-type: none"> Collect data relating to each condition from different cases Systematically and transparently convert data into a score for the analysis. This is sometimes called 'calibration' of data 	<ul style="list-style-type: none"> Work with cases to establish data availability, data requirements and collection methods Potentially collect new streams of data if required Convert data into data fields to input into a data matrix
4. Analysis	<ul style="list-style-type: none"> Use CCA computer software to carry out a systematic analysis of the dataset 	<ul style="list-style-type: none"> Use EvalC3 to conduct several configurational analyses - one analysis for each different outcome of interest
5. Results and interpretation	<ul style="list-style-type: none"> Results are expressed as statements that describe necessary and sufficient conditions for a specific outcome Interpret findings and revise the Theory of Change 	<ul style="list-style-type: none"> Produce visual illustrations of causal configurations, e.g., decision trees, using EvalC3 Work with places to interpret the findings, paying close attention to local contexts and explanatory accounts Produce a report on initial impact evaluation Review and refine conceptual framework
6. Revisions and re-analysis	<ul style="list-style-type: none"> Conduct additional analyses as required 	<ul style="list-style-type: none"> Revisit cases, (a) to verify that the consistent cases show evidence of causal mechanisms at work which are of the kind expected by the model/solution, (b) to identify characteristics of inconsistent cases that might suggest ways of revising and improving the initial theory (and possibly leading to a reiteration of the cross-case analysis)

Further resources on CCA

- Evaluating Complexity website and EvalC3online www.evaluatingcomplexity.org.uk
- Ragin, CC. (2008) What is Configurational Comparative Analysis?
- Hanckel, B., Petticrew, M., Thomas, J. et al. The use of Configurational Comparative Analysis (CCA) to address causality in complex systems: a systematic review of research on public health interventions. BMC Public Health 21, 877 (2021)
- Mahoney, J., & Goertz, G. (2006). A Tale of Two Cultures: Contrasting Quantitative and Qualitative Research. Political Analysis. 14. 10.1093/pan/mpj017
- Configurational Comparative Analysis: A Valuable Approach to Add to the Evaluator's Toolbox? Lessons from Recent Applications. (2016) Centre for Development Impact Practice Paper 13
- Configurational Comparative Analysis. Better Evaluation, Global Evaluation Initiative
- COMPASSS - Comparative Methods for Systematic Cross-Case Analysis

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