

Causality and its implications for Theories of Change and evaluations of complex systems

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Causality and its implications for Theories of Change and evaluations of complex systems

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1. Introduction

Signs of Safety (Turnell & Murphy, 2017) is a practice approach that is being increasingly adopted in child protection agencies in England and other jurisdictions. Many people see it as a credible and ethically appealing way of working with families where there are concerns of child neglect or abuse. However, it is reasonable to ask whether this initial credibility stands up to more rigorous scrutiny. A report from the What Works Centre for Children's Social Care (2019) concluded that 'there was no evidence' that Signs of Safety is effective in reducing the number of children removed from their families. By 'evidence', the authors meant primarily no results from randomized, controlled trials (RCTs) or quasi-experimental studies. I shall argue that the lack of RCT evidence for or against any of the impacts of Signs of Safety is because it is not the right research methodology to use in evaluating a whole system reform of how an organisation provides a service to children, young people and their families. Nor would I be willing to endorse any simple claim that 'Signs of Safety works' because we also need to ask 'what works, how does it work, for whom, and in what circumstances?' for research to provide useful information on how to improve children's safety and well-being, i.e. information that provides potential users not only with evidence to help them decide whether to use it but also guidance on how to implement and use it.

I value empirical research and it is from science and the philosophy of science that I have learned how the behaviour of complex systems cannot be studied by methods such as RCTs that assume a simple linear causality between the input and the output. I have been able to benefit from the efforts in other sectors such as public health and international development in developing robust methods for studying how organisational systems function.

The crux of the issue is the nature of causal processes in complex social systems such as Children's Social Care departments. This paper draws upon the learning gained from a project of implementing Signs of Safety in eleven local authorities in England over a five-year period. Consultancy support was provided by the Signs of Safety organisation for an initial eighteen-month period and then a final two-year period, ending in 2019. The work was funded by the Department for Education as part of their Innovations Programme and included funding for action research. The main finding from these years of endeavour by all concerned is that despite what can be seen as similar input from the consultancy team, the local authority Children's Social Care Departments that participated followed radically different causal pathways. During the period of the implementations, all received at least two¹ visits of inspection by Ofsted, the national inspection agency. There are four possible judgments: outstanding, good, requires improvement and inadequate and figure 1 shows the two overall judgments they received, organised according to the degree of progress made. It reveals dramatically different trajectories, some rising to 'outstanding' and others falling to 'inadequate'.²

¹ Departments receiving an 'inadequate' judgment receive annual monitoring visits.

² The OFSTED inspection framework was radically revised in 2014 so comparison with earlier judgments is problematic.

Figure 1

Local authority	Overall	Children who need help and protection	Leadership	Date
A	Requires Improvement	Requires Improvement	Requires Improvement	2014
	Outstanding	Outstanding	Outstanding	2018
B	Good	Requires Improvement	Good	2015
	Outstanding	Outstanding	Outstanding	2019
C	Good	Good	Good	2014
	Outstanding	Good	Outstanding	2019
D	Requires Improvement	Requires Improvement	Requires Improvement	2015
	Good	Requires Improvement	Good	2018
E	Inadequate	Requires Improvement	Requires Improvement	2015
	Requires Improvement	Requires Improvement	Requires Improvement	2017
F	Requires Improvement	Requires Improvement	Requires Improvement	2017
	Requires Improvement	Requires Improvement	Good	2019
G	Requires Improvement	Requires Improvement	Requires Improvement	2014
	Requires Improvement		Good	2018
H	Requires Improvement	Requires Improvement	Requires Improvement	2016
	Inadequate	Inadequate	Inadequate	2018
J	Requires	Requires	Requires	2015

	Improvement	Improvement	Improvement	2019
	Requires Improvement	Requires Improvement	Requires Improvement	
K	Requires Improvement	Requires Improvement	Requires Improvement	2015
	Inadequate	Inadequate	Inadequate	2019

While cause for regret, this variation is not at all surprising. Making a major change in a system leads to numerous interactions with other parts of the system so there is no standard way that systems will respond to an equivalent input.

A consequence of the range of progress made is that it becomes difficult to evaluate whether Signs of Safety works by looking at the project as a whole. Some families in some areas received a Signs of Safety service but, in each area, implementation was incomplete to varying degrees. The results highlighted the extent of change needed to move an English child protection agency from the highly proceduralised system focused on compliance and performance indicators, as described in the Munro Report (2011), to a system focused on children’s safety and well-being, trying creatively to work with families and their relatives and friends to improve their parenting.

Although in everyday life we usually talk of causes and effects in a straightforward, linear *a causes b* way, the concept of cause has long been problematic to philosophers and many researchers in both the natural and social sciences. The purpose of this paper is to use the example of the implementation of Signs of Safety to explain some of the many ways that complex causes can be theorised and thence studied and why the question is not ‘does Signs of Safety work?’ but the several questions: what works, for whom and in what circumstances?

This explanation, while abstract and philosophical, has the practical aim of providing a more detailed understanding of three issues:

1. Why the Signs of Safety theories of organisational and practice change take the form they do.
2. Why a major strand of work in the English project has been to develop methods for measuring the quantity and quality of Signs of Safety practice so that it is possible to form a judgment on whether the family have experienced a Signs of Safety service of sufficient depth and breadth to justify the name. Just as studying the efficacy of a drug requires some measure of how much was ingested by each patient so does studying the impact of Signs of Safety practice need a measure of the quantity and quality of the service that was delivered and of what has been experienced by the family.
3. How the analysis of progress in the ten case studies³ was conducted.

³ Omitting the one that dropped out after the first episode

2. Causal connections

A common way to talk of causes is to differentiate necessary from sufficient conditions. A necessary condition is one that must be present for the outcome to occur. A sufficient condition is a condition or set of conditions that are sufficient to bring about the outcome. However, in child protection work, the research evidence that we can draw on identifies neither necessary nor sufficient conditions. Our understanding of child development exemplifies this. Research on adverse childhood experiences (ACEs) for instance, concludes that they may contribute to physical and psychological problems later in life. However, adults can experience serious problems without experiencing any ACEs while others can experience several ACEs in childhood without perceptible difficulties later (Finkelhor, Shattuck, Turner, & Hamby, 2015).

Research that evaluates interventions in child protection work produces a similar pattern. Even where an RCT has shown better results for the treatment group compared with the control group, the average result covers families who showed a lot of progress, no progress and even some deterioration (see e.g. Littell, 2006). The control group shows a similar variety of outcomes. So the intervention being evaluated cannot be claimed to be either necessary or sufficient for achieving the positive outcome sought. It has however, a greater tendency than the control intervention to achieve it in the population studied in the RCT. The average effect reported in an RCT misses the complexity of how interventions produce effects.

Mackie (1965) offers a way of thinking about such causes that helps illustrate the complex causality that produces social problems and social solutions. He proposed the concept of INUS conditions: an

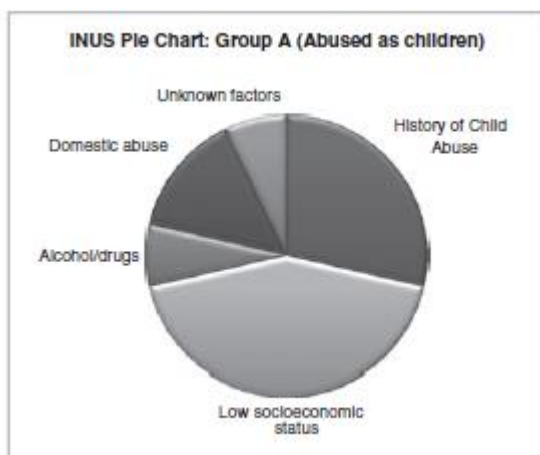
Insufficient but
Necessary part of an
Unnecessary but
Sufficient condition.

So, for example, when treating an adult A with severe depression, his experience of physical abuse as a child may be seen as a cause. However, this is not to claim that it was a *necessary* condition – many people develop depression without experiencing childhood abuse – nor is it seen as *sufficient* – many can experience childhood abuse without becoming depressed. But for this person, the abuse experience is a necessary part of how depression developed for him as it combined with other factors that, together, were sufficient to lead to depression. Hence, the abuse was a necessary but insufficient part of an unnecessary but sufficient condition to cause depression.

Another individual B could share many of the experiences that were causal conditions in creating A's depression but other factors in B's life interacted with them in ways that neutralised their potentially harmful effects.

An 'INUS pie' offers a simple way of visualising this complex interplay of factors for an individual. Suppose we are explaining what caused Mr Smith to be abusive, the whole INUS pie is the 'sufficient condition'. It is sufficient in the sense that it can bring about the effect (adult perpetration). However, this happens if (and only if) all the constituent parts are present. Each sufficient condition is made up of insufficient, but necessary parts. They are necessary because, if they are removed, the remaining cluster of factors alone will not lead to abuse. These parts are also insufficient, because none of them by themselves will result in adult perpetration. So, for example, the INUS pie for Mr Smith shows all the factors indicated are present at the same time (Figure 1.1).

Figure 1.1

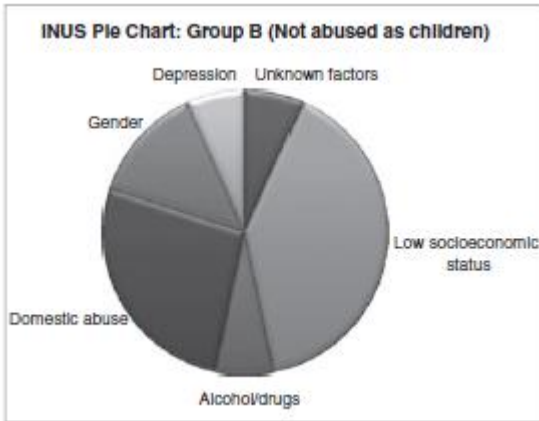


In this particular context, for this particular man, all these factors are necessary to bring about the outcome of becoming an adult perpetrator of abuse. One slice of the pie is marked 'unknown factors' because the current state of knowledge does not allow us to identify all the conditions that contributed to individuals becoming an abuser. A history of child abuse is by itself insufficient to cause the effect. It requires all the other factors to be present at the same time in order to 'cause' the abuse. This fits with the observation that some people go through periods of abusing then not abusing, at some times, some factors will be missing and, at other times, present. So a childhood history of abuse is only ever a part of a sufficient condition.

However, research findings do not lead to the simple conclusion that the factors that are present for Mr Smith are applicable to all. The conditions vary between individuals, as demonstrated with the example of Mr Brown (Figure 1.2).

Mr Brown was not abused as a child, but a different set of 'insufficient but necessary' factors combine to lead to adult perpetration. For him, a different set of factors is associated with being a perpetrator of abuse. He was not abused as a child, but a number of factors combined to create the causal conditions for becoming a perpetrator of abuse.

Figure 1.2



3. INUS conditions and Signs of Safety Theories of Change

The Signs of Safety Theories of Change sets out INUS conditions rather than universal claims.

The Theory of Change for practice recognises that families are affected by numerous other factors that will influence the course of events so Signs of Safety alone cannot guarantee a good outcome. However, it does claim that addressing the problems with Signs of Safety practice tends to be helpful.

The organisational Theory of Change makes the same point. It recognises that an individual worker is not a free agent to choose independently what he or she does but is always shaped, helped and constrained by their organisational system and the requirements placed on it. Indeed, many aspects of the organisation, such as quality assurance, resources, managerial oversight, are explicitly designed to influence front line work. Some organisational factors are 'support' factors (Cartwright & Hardie, 2012) that make it easier to perform well and harder to perform badly, such as having software for case recording that is aligned to the practice framework. If we think in terms of an INUS pie, then the claim is that when these support factors are present they will tend to make the desired outcome (of improved outcomes for children) more likely. Others however can be 'derailers', when they are present they stop the causal pathway, for example, a new Director who is opposed to Signs of Safety can stop its use, i.e. the Director being at least tolerant of using Signs of Safety is a necessary condition. 'Detractors' have the opposite effect to support factors: they tend to diminish the causal impact. Heavy workloads can have this detracting impact in Signs of Safety because they make it hard for the worker to spend sufficient time with the family to develop a good relationship.

The following two figures 1.3 and 1.4 illustrate how the presence or absence of the components of the organisational Theory of Change are postulated to make it more likely that Signs of Safety practice will be done well and the child will have better outcomes. The size of the slice of pie in these figures is not a precise calculation. Figure 1.3 illustrates a scenario where the outcome was good.

Figure 1.3

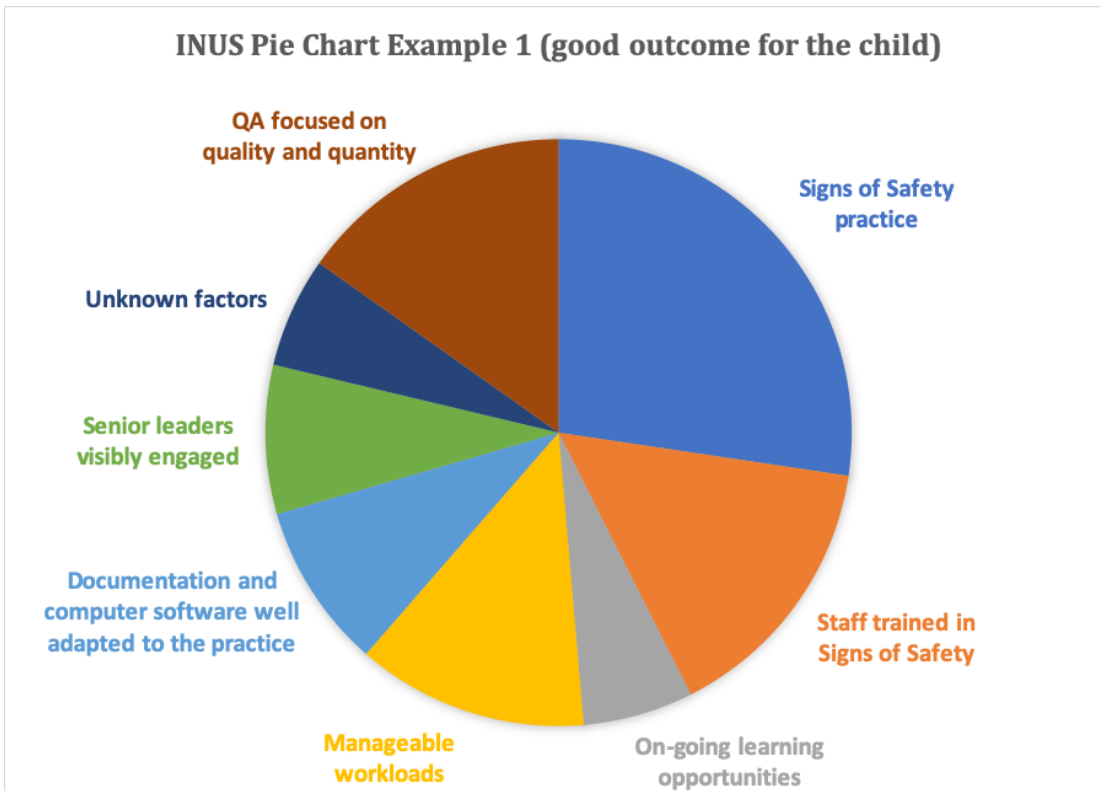
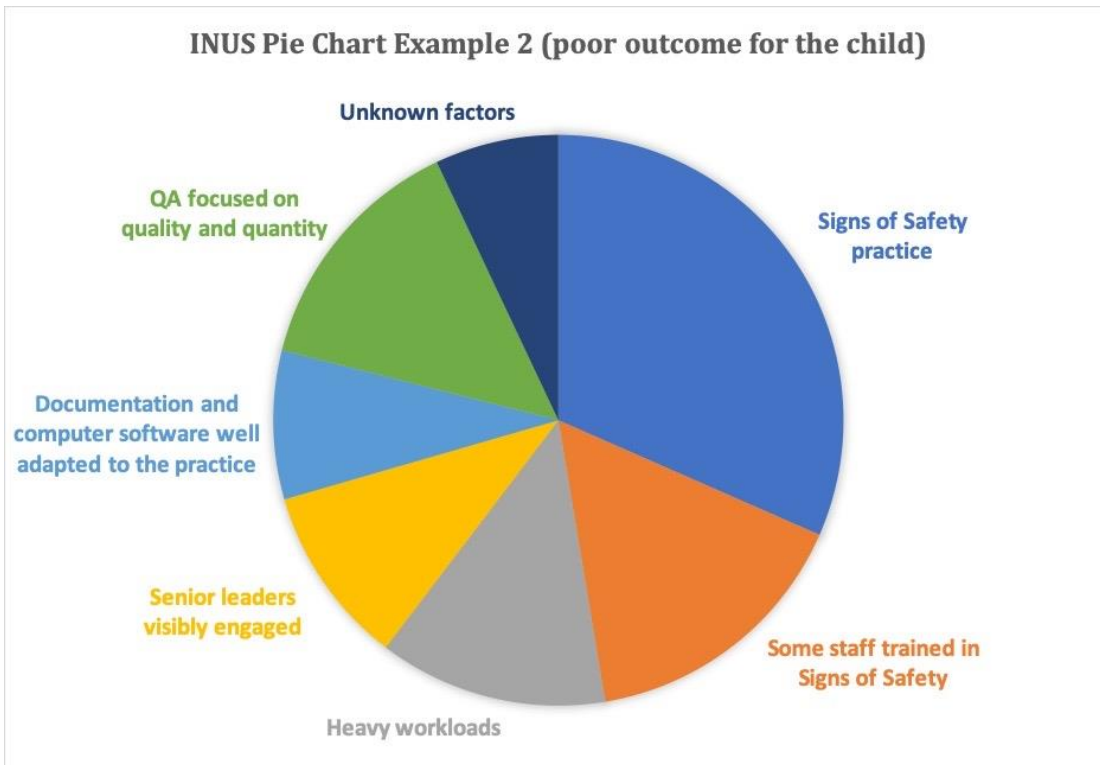


Figure 1.4 illustrates how some factors can be ‘derailers’ stopping the causal pathway to the intended outcome or ‘detractors’, diminishing the effects of Signs of Safety on the problems.

Figure 1.4



3. Causal pathways

Causality is not just one inert event after another but causes are active in producing their effects. Aligning the organisational documents (e.g. policies and forms) to Signs of Safety practice has an impact on workers' actions by some causal pathway. These are sometimes called mechanisms in the literature but this term is so ambiguously defined that I prefer 'causal pathway'. Typical Theories of Change ignore the activities by which the effects are produced, and contain diagrams showing only variables at the nodes, with thin arrows in between.

Such a strategy is reasonable if the aim is to offer a brief overview of the Theory of Change such as in this Signs of Safety infinity loop diagram below. This shows the Signs of Safety practice at the centre of an infinity loop featuring the main areas of organisational behaviour that interact with each other and with the direct work with families.



More detail is needed, however, for others to be able to use it. Causal pathways, how one variable has a causal impact on another, are frequently neglected in the literature. In their introduction to *Social Mechanisms*, Hedsrom and Swedberg write:

: *'...the increasing use of [survey analysis and statistical techniques] has ... fostered the development of a variable centered type of theorizing that only pays scant attention to explanatory mechanisms'*.

Pawson & Tilley (1997) leading experts on realist evaluation make a similar point: *'..in most survey and evaluation research, theory is 'flattened' so that it is expressible only in X → Y propositions [p.301] Theory is indeed flattened so that middle-range questions about contexts, mechanisms are squeezed from the agenda' [p410].*

Inattention to how one variable has an effect creates problems in knowing in what context the causal effect may be produced, what support factors need to be in place to help the causal process to occur and what detractors or derailers might threaten it.

Therefore in the final report on the project (Munro & Turnell, 2020) the aim was to give a more detailed account of *how* the variables in the Theory of Change, such as leadership, had an influence on the subsequent causal pathways leading ultimately to the work done with families. Hence, it includes a number of vignettes that provide stories of what was done and how it was experienced by those on whom it had a causal impact. For example, '*strong, visible senior management engaged with the day to day experience of staff*' is listed as a support factor in the detailed organisational Theory of Change. In the projects, those directors who implemented this used a wide range of activities that made them visible to staff and were seen by staff as demonstrating an interest in and understanding of the practice, e.g. shadowing front line workers and conducting collaborative case audits.

4. Signs of Safety work with families is not necessary to achieve the desired improvements in children's safety and well-being

The above sections have primarily discussed the contribution of the organisational Theory of Change to creating the supportive context that makes it easier for direct work to be implemented in line with the practice Theory of Change. They explained why the organisational and the practice Theory of Changes did not provide a *sufficient* condition to bring about the desired outcome for children. This section explains why, even assuming that the practice has the breadth and depth to be called Signs of Safety, they are also not a *necessary* one. They are not necessary because there are other practice approaches that can help and families are often able to solve their problems without professional help so if you do not use Signs of Safety good outcomes may be achieved by another route. The INUS pie may contain other factors that provide a similar contribution to the causal chain and the desired outcome is reached by a different causal pathway.

This does not negate the claim that Signs of Safety has a tendency to be helpful. In a particular case, Signs of Safety work with the family was part of the causal pathway and therefore was a factor in producing the desired outcome. The questions of more relevance are 'when is Signs of Safety helpful? 'how is it helpful?'

In child protection, the comparison group in a RCT receives services since a child protection agency in all jurisdictions has a legal duty to respond if a child is 'suffering or likely to suffer from significant harm'. In trials the comparison group is usually, a poorly specified 'service as usual'. Evidence of better outcomes in the experimental group is often interpreted as meaning it is effective – 'this works'- a misleading simplification of the more modest result that more families in the experimental group showed progress than in the control group. For all the reasons presented here, causal claims for Signs of Safety show that it cannot be usefully evaluated by an RCT since such a research methodology does not provide enough detail to enable someone to decide

whether to adopt Signs of Safety and what factors will help the agency to provide families with a good Signs of Safety service.

5. How was progress studied in the innovations project?

So what methods can you use to study the impact of using Signs of Safety? Most of the report on the action research undertaken in the project details how quickly and how much each local authority implemented the organisational and practice Theory of Change - creating the organisational support factors and training staff to use Signs of Safety methods correctly. The degree of progress made on each factor was then checked against the quality of the service at the end of the project, using the Ofsted judgments as a measure of quality because they are an independent judge and their conclusions did not differ significantly from internal assessments of quality. Major developments within the project were in creating methods for measuring the breadth and depth of practice so that future researchers could better assess whether a family received the type of service specified in Signs of Safety. This allows for future research that can study whether those families receiving a complete Signs of Safety service tend to show more improvement than those receiving a partial or non-Signs of Safety service.

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