

Theory-based Methodology:
Using theories of change for
development, research and
evaluation

Edited by Karen Laing and Liz Todd
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Theory-based Methodology: Using theories of change for development, research and evaluation

Introduction

The objective of this publication is to assist practitioners and researchers to undertake project development, implementation and evaluation using *theory of change*. This is applicable to a wide range of domains including education, public health, social care, community work, youth work, the arts and more. The aim of this publication is to:

- Give researchers and practitioners some ideas about how a *theory of change* framework can be used and the opportunities and challenges it brings
- Inspire and encourage both practitioners and researchers to consider different ways of using theory-based methods in their work.

Authors

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Background

Karen Laing, CfLaT

What are theories of change?

Theory of change is a theory-based approach to planning, implementing or evaluating change at an individual, organisational or community level. An assumption is made that an action is purposeful. A *theory of change* articulates explicitly how a project or initiative is intended to achieve outcomes through actions, while taking into account its context. Theory-based methods are applicable to a range of disciplines including, for example, education, community development and public health. This approach has its roots in the 1960s, when Kirkpatrick used the model to examine the effects of training on students.¹ It has grown in popularity in the last twenty years, partly in response to the need for a framework that can take into account the complexity of multi-stranded and interrelated actions to encourage social change. Theory-based methods take many forms and are referred to in a variety of ways (for example program theory, implementation theory and realistic evaluation), but usually incorporate a *theory of change* in some form. In CfLaT, we have been using theory-based approaches since 2000. This booklet presents our understanding and use of *theory of change*.

Definition:

A systematic and cumulative study of the links between activities, outcomes and context of the initiative

(Fullbright-Anderson, Kubisch and Connell, 1998, p. 16)

Figure 1 Definition of theory of change²

Traditional input–output evaluation methods or methods-based research designs, based solely on either outputs (data relating to practitioner actions) or outcomes, typically do not articulate or explain the

causal chains that influence outcomes. Such methods have been criticised for encouraging ‘black box’ thinking. For example, a researcher may test the hypothesis that providing one-to-one study support results in higher educational attainment scores for pupils.

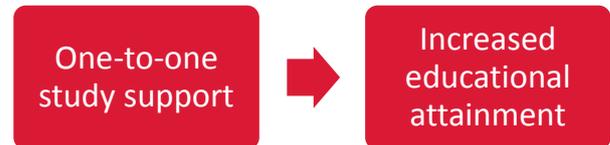


Figure 2 Standard hypothesis

A randomised control trial (RCT) could be devised to test this hypothesis and a statistical relationship described. What is missing, however, is an explanation of the causal mechanisms that may or may not be at work here. How do we know why one-to-one study support works? Who does it work for? In what circumstances? If a relationship is not discovered, is this due to implementation failure (i.e. the one-to-one study support was not delivered in the way it was expected) or programme failure (i.e. one-to-one study support does not work)?

Many practitioners have become caught up in a performativity culture that values and measures outputs (e.g. how many people receive an intervention or how many times a programme is delivered) rather than outcomes (e.g. changes in wellbeing for beneficiaries). Developing a *theory of change* for an initiative changes the way of thinking from what you are doing to what you want to achieve.

Traditional approaches to evaluation that measure outcomes often require them to be known (or hypothesised) at the start and baseline measures to be in place. However, many initiatives and projects may have outcomes that are not known at the start, or that are very hard to define, such as cultural change or a positive school ethos. *Theory of change* enables a portfolio of data to be collected that might represent a more complex outcome. The way in which initiatives are implemented is crucial, and context is not just another variable but a critical part of the success or otherwise of achieving change. For some promising initiatives, the outcome may not be

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visible for a number of years, and *theory of change* is a way to demonstrate that outcomes are indeed likely. For other initiatives, using statistical averages may mean that individual effects may be overlooked or ignored, and *theory of change* can make these visible. By using a *theory of change* approach, we can articulate how we expect outcomes to be achieved. We do this by exploring the real-world setting in which the project is being implemented, the starting situation, and risks or opportunities that may influence achieving change, the actions to be taken and the steps of change expected to take place.

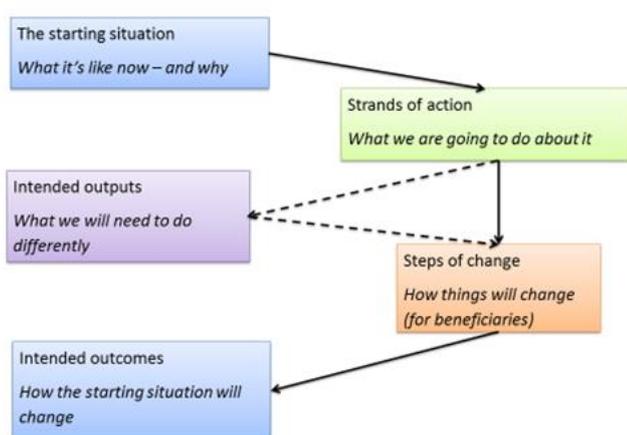


Figure 3 Characteristics of a theory of change

How are theories of change developed?

Theories of change may be articulated in different ways and using different methods. There are three key approaches generally used in order to develop a *theory of change* that is either researcher driven or project driven:³

1. **Deductive model.** In this approach, theories of change are developed from existing research. Evidence is collated from literature and existing knowledge about how the world works, and simplified into steps of change (see Case Study 5).
2. **Inductive model.** Not everything happens the way in which we expect. The inductive approach attempts to build theory from observing phenomena in action rather than relying on what is already known or assumed about how it works (see Case Study 4).

3. **Mental model.** This privileges the knowledge and experience of stakeholders, who have their own ideas about how things work, and they are facilitated to express these (see Case Study 2).

In addition, a fourth model is devised collaboratively:

4. **Collaborative model** (see Case Studies 1 & 3). Using this approach, a *theory of change* is co-created through collaboration between academic expertise (inputting evidence from existing research) and practice expertise (where stakeholders outline their view of how things work). The researcher takes the position of a critical friend with a support and challenge role with stakeholders.⁴

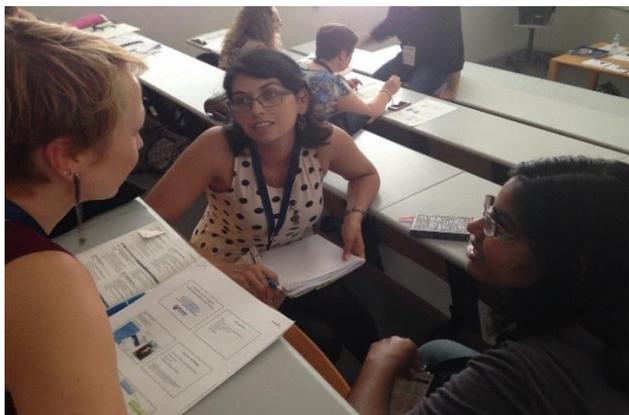
People developing or running projects or initiatives are often very aware of all the things they are doing, but the steps of change to impact may not be clearly articulated or visible to them. It often takes time to talk through the various elements of a *theory of change*. During interviews or workshops, the following questions are typical:

1. What is the situation you face? What are the underlying causes?
2. What needs to change in the long term? How do you want things to be different?
3. How will these changes be made?
4. What actions will you take? What will participants experience as different?
5. What effect will those actions have? On whom? By when? What will happen next? What will happen after that?
6. How will you know if change is happening? What will you see? How will you measure that?
7. What will happen for Person A, Person B, etc.
8. What might prevent this from happening?

Above all, a *theory of change* should demonstrate some internal validity or, in other words, make sense! However, making sense of complex ideas that often have not been articulated before, or are based on underlying assumptions and prevailing ideologies, can be difficult and takes time. It is likely that people involved in a project will not have exactly the same

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views of the *theory of change* and some way of reaching consensus needs to be found.



Most *theories of change* may be depicted by a diagram. Those that we tend to use consist of a list of the steps of change, from the starting situation to the outcome(s). The list can be very simple or involve multiple strands of action encompassing several outcomes (e.g. in more complex initiatives). Most of the time there is not a single list but several, each relating to a different strand of action. For example, a centre for early years, such as Children's Centres in the UK, may have strands for action in child learning and development, parent support and community cohesion. One strand may bring together several actions (e.g. parent support may involve providing parent education, access to a parent advisor and encouraging parents to co-manage the Centre) or may be a sole action in and of itself. There are often complex links between strands of action (as in Figure 4). In using a *theory of change* there is a risk of presenting change as linear, but links between strands mean that other relationships can be accommodated and explored. A diagram can be shared, discussed and modified relatively easily, and can demonstrate whether the theory is plausible, doable, testable and meaningful.⁵

Using a *theory of change*

Theories of change may be developed and used at various points in the lifecycle of an initiative or programme, from planning an idea through to implementation, delivery and review. It can be used as an approach to programme evaluation. A *theory of change* may be used to plan a project from the start.

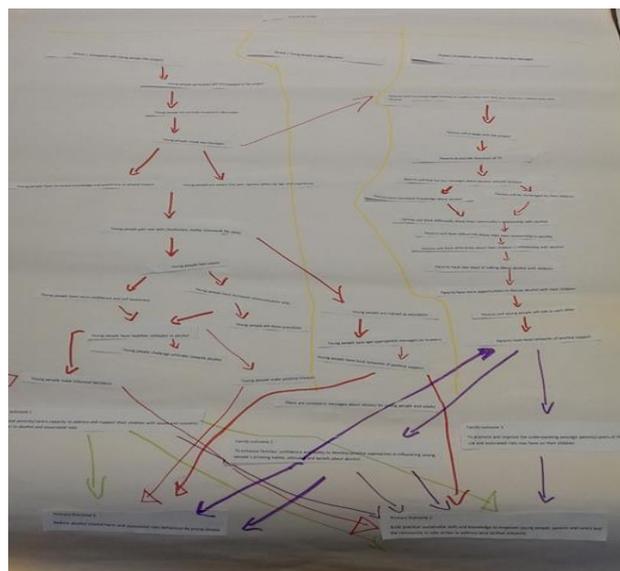


Figure 4 Piecing together some steps of change into a causal chain

Using a *theory of change* when the project is underway can enable an understanding of why a programme does or does not work, and lets an evaluator or practitioner see where in the chain things are not going as they should. It can improve planning and prevent project drift, and highlight gaps in knowledge or thinking that is lacking in clarity.

Collecting evidence

Whether it is used to implement, review or evaluate a project, there needs to be some assessment or testing of the chosen *theory of change*. Questions should be asked about the extent to which the theory can be supported. If the purpose of using *theory of change* is for evaluation, an evaluation plan can be developed. Such a plan would list the steps of change and the kinds of data that are available or can be collected for each step. The plan might also specify who would collect the data. The methods chosen to collect evidence about the *theory of change* will depend heavily on the ontology and epistemology of those involved, and the appropriateness of the method for the type of change being studied, as well as for what the theory is intended to be used. The adopted model (1-4 above), in turn, will influence the methods used to develop a *theory of change*.

Methods might include:

- Literature review

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- Documentary analysis
- Observation
- Individual interviews
- Group interviews or workshops
- Visual and participatory methods

For some steps of change, it will be possible to collect data over time. Once collected, it is possible to consider whether the nature of the data suggests that the *theory of change* can be supported or refuted (and to what extent). Data can be collected to give evidence of who the change is happening to, and how widespread or focused it is. The evidence can be quantitative or qualitative, and a mixed methods approach is both possible and desirable. In most of our projects, the evidence resembles a portfolio of both qualitative and quantitative data collected from a range of sources. Data from RCTs can be used to evidence particular steps of change. The portfolio approach of building up evidence in support of a theory means that different kinds of data can be valued, including those collected by non-experts such as project staff or young people.



The evidence of 'what works' comes from the achievement of intermediate outcomes and the absence of alternative explanations. This increases confidence in a causal claim, especially in complex multi-stranded initiatives where a counterfactual is often not possible.

What next?

The following sections present case studies of different projects in which the Research Centre for Learning and Teaching staff have been involved that have used a *theory of change* approach. Each will explain why a *theory of change* methodology was appropriate, how a *theory of change* was developed and used, and what benefits and challenges this methodology presented. Each case study is different, and has given rise to different issues. The final section will draw together our learning so far about using *theories of change* for development, research and evaluation. The following projects are presented:

CASE STUDY 1 Developing a collaborative *theory of change*: The evaluation of 'Thinking Differently', funded by the Joseph Rowntree Foundation. [page 7](#)

CASE STUDY 2 Using *theory of change* interviews to support the development and review of inter-professional coaching for communication-rich pedagogies, funded by Newcastle University Business Development Fund. [page 10](#)

CASE STUDY 3 'Co-curate North East', Digital transformations in community research coproduction programme, funded by the Arts and Humanities Research Council. [page 13](#)

CASE STUDY 4 Evaluating change in school: Open Futures 2011-13, funded by the Helen Hamlyn Trust. [page 16](#)

CASE STUDY 5 'Out-of-school Activities and the Education Gap', funded by the Nuffield Foundation. [page 19](#)

CASE STUDY 1: Developing a collaborative *theory of change*: The evaluation of 'Thinking Differently'

Jill Clark, Karen Laing and Liz Todd, CfLaT

Study context

Research has uncovered the complex relationship that people have with alcohol: its use and misuse; its link with health problems; risky behaviour; and criminality. It has been identified that good family relationships, positive community connections and alcohol risk-awareness in parents and young people can enable children to develop a resilience to the harmful effects of alcohol.⁶ In June 2012 the 'Thinking Differently – Young People and Alcohol' partnership was launched in order to trial innovative, preventative interventions designed to reduce alcohol-related harm in Scotland. Partnerships have been forged in three areas of Scotland with local agencies and organisations such as schools, health services and youth services. These have designed and delivered projects that aim to reduce alcohol use and associated risky behaviour by working with young people, parents, peers and communities.

This case study focuses on the evaluation of 'Thinking Differently', funded by the Joseph Rowntree Foundation (JRF). Although we were commissioned to evaluate the programme, it manifested itself as an evaluation of three distinct projects, each focused on different modes of delivery and intermediate outcomes. Our evaluation involves a collaborative, mixed methods *theory of change* approach over three years.

Why and how we used *theory of change*

As 'Thinking Differently' tackled a complex societal problem in a multi-stranded way with multiple intermediate outcomes, it would have been difficult to evaluate using a more traditional evaluation design based on inputs and outcomes. Experimental

methods were not possible, owing to the key outcomes being about long-term cultural change in communities rather than changes in any key individuals taking part in the project. Also, the JRF advocated a collaborative and participatory approach between the projects, their funding partnership, the young people involved and the evaluators, and we were keen to build on this.

We decided that a *theory of change* approach would be appropriate, as it enables working collaboratively to explicate individual projects' underpinning theory or theories. *Theory of change* takes into account the complexity of environment and relationships that a simple input–output model of evaluation would overlook. It also enables project staff to develop their own evaluation plan, based on the steps of change that they outline, and to have a clear plan for data collection. We developed a *theory of change* for each project using the following steps:

1. Conducting an initial meeting with strategic and operational staff to establish relationships, explain the *theory of change* evaluation strategy, and discuss roles and expectations.
2. Undertaking a series of interviews during which the project staff articulated information that would help to construct a *theory of change*. This included their views about the situation in their area that needed to be addressed by their project, the actions they were going to take, any explicit risks to the project and the description of a clear chain of steps of change for beneficiaries, leading to intermediate and longer-term outcomes.
3. These views were put into one or more diagrams and discussed and modified until consensus was reached about a coherent, workable and measurable *theory of change*. The *theories of change* that were developed with the projects incorporated ideas such as empowerment theory, behavioural change theory and theories of community development, yet taking into account practitioner knowledge and experience of the context in which they were working.
4. An evaluation plan was drawn up in collaboration with the projects, utilising existing data collection strategies devised by the projects and advising on

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methods they could incorporate in their practice, as well as identifying a specific data collection role for the evaluators.

5. Approximately half-way through the evaluation, project staff were invited to revisit their *theory of change*, based on the evidence collected at that point, to re-evaluate whether the theory was holding or whether changes needed to be made, perhaps due to modifications of actions or because steps of change were not happening in the way they had predicted.

What was the contribution of *theory of change*?

The 'Thinking Differently' evaluation is an example of a complex community-based evaluation to which *theory of change* methodology was particularly suited. Our approach to evaluation has been to develop an ethos of partnership and collaboration with project staff. Used with such an ethos, *theory of change* inevitably leads to discussions with project staff about how to develop the projects over time. We found that, generally, project personnel had rarely thought in this degree of detail about their projects, and to do so takes time and discussion. We found that the initial concern of project workers about what we, as an evaluation team, were going to demand was replaced by a level of interest in the process and a motivation to take part. We noticed that project staff were able to look at the data they were collecting with a much more critical eye, and they developed new ways of evidencing their theories, suggesting ways in which the evaluators could work with them to collect new kinds of data. This was quite a different approach for the project workers, some of whom had been expecting to report on outputs (their own actions) rather than evidencing outcomes (the impact on the people with whom they were working).

We found that staff from different projects engaged with the *theory of change* approach in different ways. One project team really embraced the approach and found it made real sense. The members integrated it into their project planning and review processes. Another project team was keen to engage with it and spent time developing its own *theories of change* with

evaluator involvement that members could use for project monitoring.

'Certainly I've never had an external evaluator involved like you guys are – it is a different process' (project worker)

The third team already used logic models routinely to guide their project and did not think *theory of change* was a useful addition to their approach to evaluation. They were used to being held accountable at regular intervals for data on their own actions (such as the level of youth involvement in the project) and, with limited time and resources, did not see how collecting data on steps of change was relevant to their reporting of outcomes. As evaluators, we did not realise for a while that the role we aimed to adopt in facilitating a learning journey was at odds with the one the project staff had expected us to take in the evaluation. Despite this, the project workers valued what they identified as the 'critical friend' role of the evaluators.

Overall, however, the *theory of change* enabled project workers to see not just where they themselves could contribute to evaluation, but where project users and beneficiaries could be involved. Subsequently, we worked with young people using visual methodology (including diamond ranking)⁷ to contribute to the *theories of change* drawn up by project staff. This was undertaken so that we could gain their views on what they wanted to achieve, and compare them to those of project staff.



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One of the main contributions so far by the *theory of change* approach in this evaluation has been the use of the steps of change diagrams to identify whether key aspects of the projects were running to plan. The visual nature of the diagrams made the gaps in evidence easier to identify and facilitated discussion on what actions needed to change.

Theory of change was not helpful just for evaluation purposes; it was incorporated by some project staff into their planning and review processes. Our questioning as part of the development of the *theory of change* made them more aware of their actions in relation to their intended goals. As time went on, there was an iterative process whereby *theories of change* and evaluation plans were reviewed, and actions were thus changed or modified to stay on track towards achieving the intended outcomes.

Project staff were able to situate their view of success clearly within the *theory of change*, thus managing expectations of what could be achieved in the timescale and preventing unrealistic expectations. They saw the *theory of change* as an important planning tool that kept them focused on the needs of beneficiaries, avoiding becoming lost in a cycle of delivery.

This was made possible by talking about the evaluation as a learning journey, a journey of exploration for both evaluator and practitioner, in which the *theory of change* became a framework for both action and evaluation.



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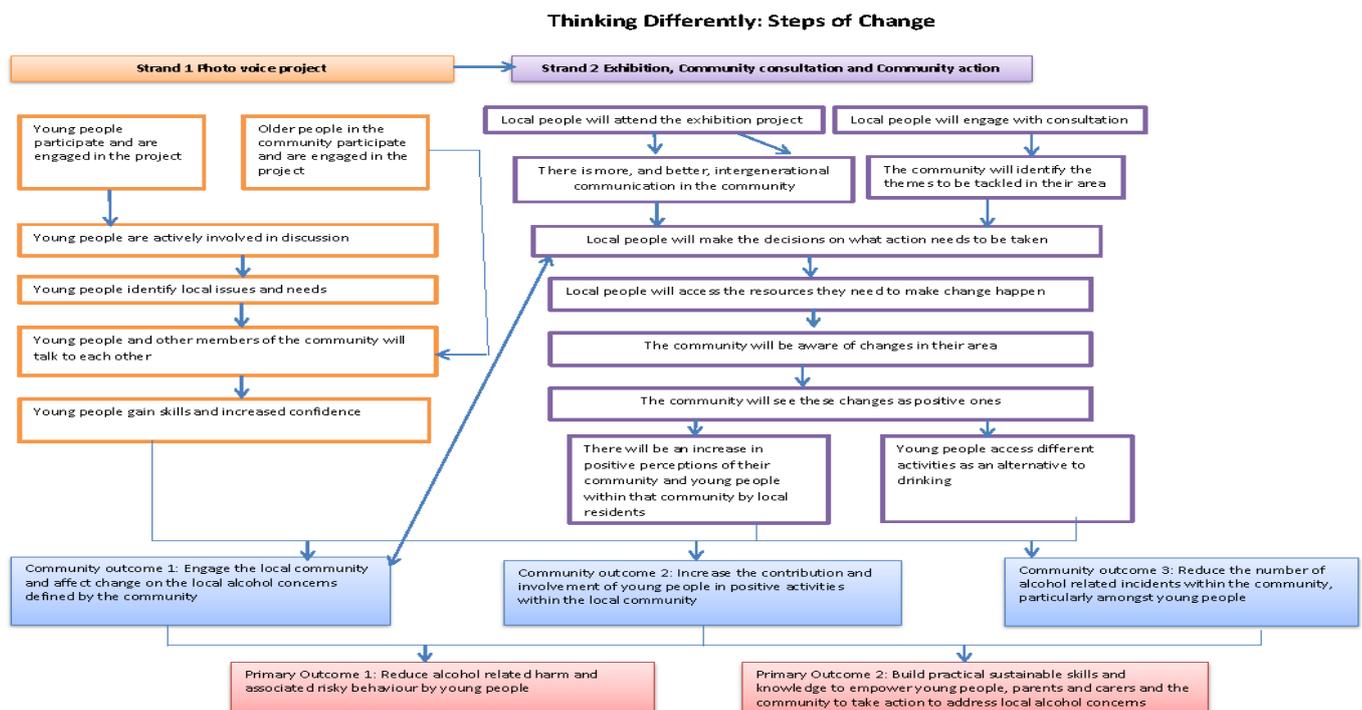


Figure 5 Example steps of change

CASE STUDY 2: Using *theory of change* interviews to support the development and review of inter-professional coaching for communication-rich pedagogies

Rachel Lofthouse, CFLaT

Bibiana Wigley and Jo Flanagan, CLARITY

Study context

Recent data produced by the Communication Trust demonstrate a 70 per cent increase in the number of children with speech, language and communication needs (SLCN) in the last six years (Lindsay et al., 2012).⁸ This means that many teachers are finding more children with SLCN in their classrooms at the same time as the speech and language therapy services have been reduced to prioritise children with the most complex needs, and the expected standard of attainment in early years and primary schools has been raised. A concern is that few early years practitioners or teachers receive pre- or post-qualification training about how best to support these children.

This project was developed in response to this situation. We focused on the development and impact of video-based inter-professional specialist coaching between speech and language therapists, and nursery and primary practitioners. The original settings for this work were primary and nursery schools serving multi-cultural and multi-lingual communities in the East Midlands, UK. The development of the coaching model allowed the speech and language therapists to engage teachers and teaching assistants in conversation about their own classroom practices.

Why and how we used *theory of change*

In this project we were interested in how the school leaders and practitioners of two schools conceptualised their *theory of change* in relation to developing communication-rich pedagogies in their nursery and primary settings, and what contribution inter-professional coaching made in enabling and sustaining the change. This was a small-scale research project, undertaken by Rachel Lofthouse of CFLaT, designed to support the development of new video-based coaching practices by Jo Flanagan and Bibiana Wigley, who had recently established an independent speech and language consultancy (CLARITY). The *theory of change* approach was used as the structure for two interview cycles, enabling multiple voices to inform both the development and evaluation of the intervention. Those interviewed were the head teachers of the two schools, but not the coaching participants (the teachers and the teaching assistants). The initial *theory of change* interviews were based on the questions in Figure 6.

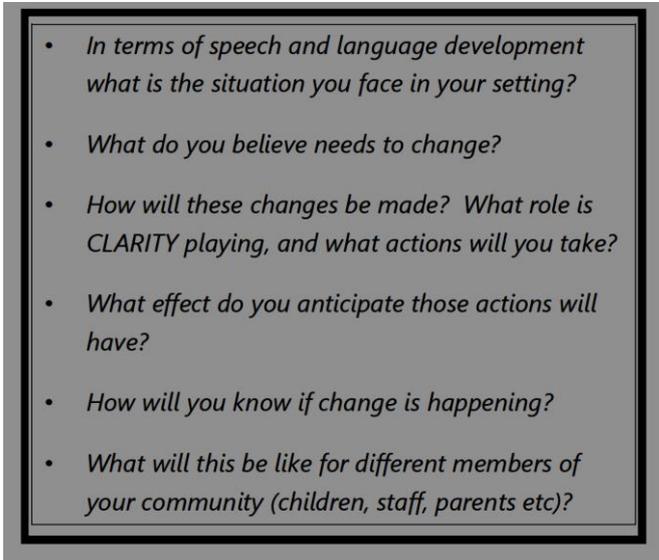
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- *In terms of speech and language development what is the situation you face in your setting?*
 - *What do you believe needs to change?*
 - *How will these changes be made? What role is CLARITY playing, and what actions will you take?*
 - *What effect do you anticipate those actions will have?*
 - *How will you know if change is happening?*
 - *What will this be like for different members of your community (children, staff, parents etc)?*

Figure 6 *Theory of change* interviews with head teachers at the start of the coaching project

These interviews yielded significant evidence of the expectations of the head teachers, and the resulting interview notes were mapped as flowcharts (see Figure 7). These were based on three core themes, each considered in relation to the staff and the children in the setting:

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1. The starting situation: what is it like now and why; and what needs to change?
2. The steps to change and strands of action: what we are going to do about it?
3. The desired and intended outcomes.

These flowcharts were used six months later as the basis of individual interviews conducted with the same head teachers who had participated in the specialist coaching and their teachers and teaching assistants. At each interview the flowchart for that setting was shared and the interviewees' opinions gathered as they reflected on the intentions and actions. This was undertaken in relation to both the original 'theorised' leadership perspective and the actual experience of participating in the coaching.

What was the contribution of *theory of change*?

Theory of change was used as a methodological tool to support both the development and review of the inter-professional coaching approach. The coaching approach was in a development phase and all parties were aware of this. We (Jo and Bib of CLARITY and Rachel from CfLaT) undertook joint practice development that evolved, over time, to share the characteristics of collaborative action research.

The key role of the initial *theory of change* interviews was to create a space in which the school leaders could articulate their expectations of the coaching and its relationship to other aspects of school improvement designed to enhance children's communication and progress. Understanding this helped us to design and position the coaching, and to review its practice. The resulting coaching approach was informed by models of teacher coaching⁹ and

School A: Nursery Setting

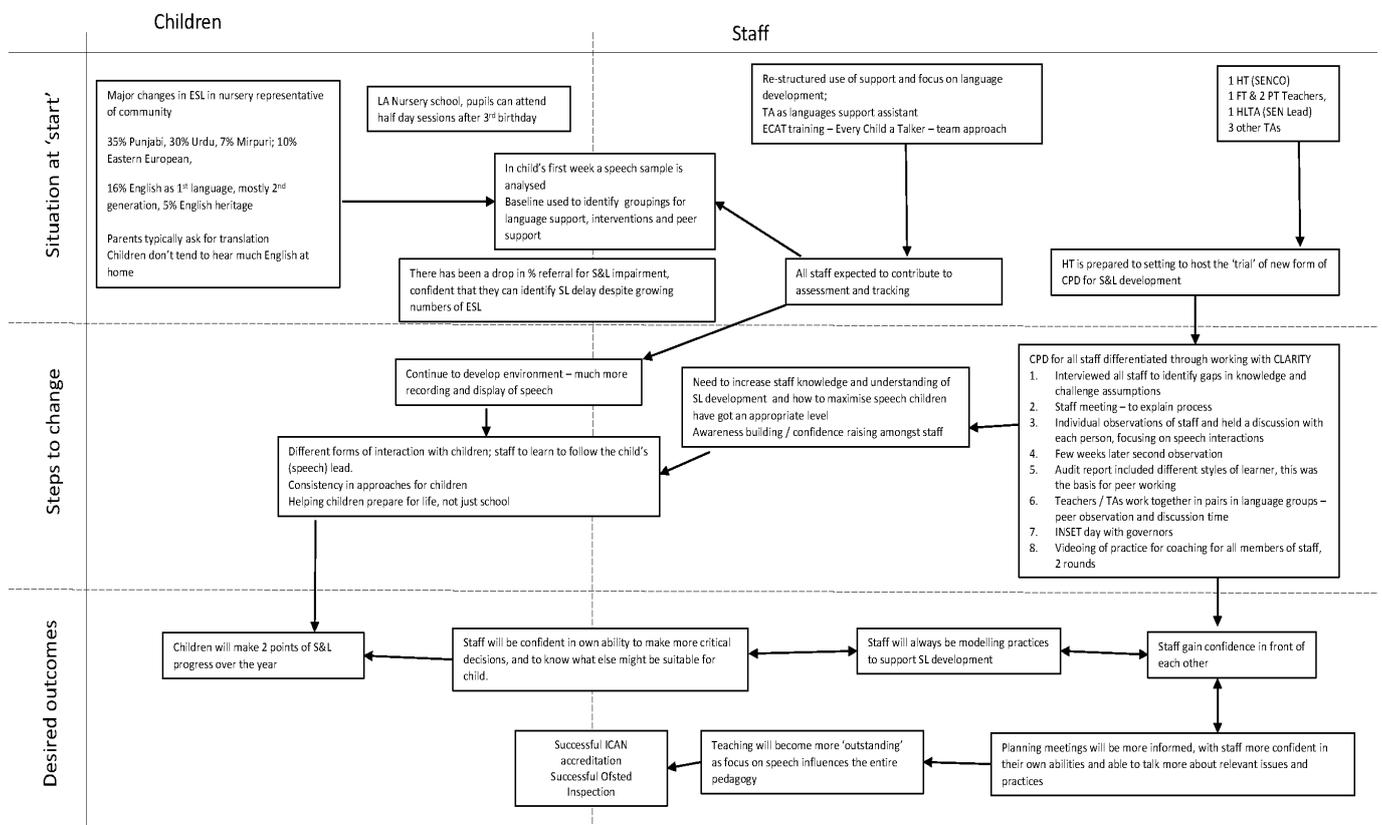


Figure 7 Initial theory of change interview mapped as a flowchart for use as the basis of return interviews

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video interaction guidance¹⁰ rooted in professional learning that made deliberate and explicit work processes, learning activities and learning processes.¹¹ The return interviews allowed us to draw out the multiple voices of school leaders and coaching participants and, as such, informed the evaluation of the coaching intervention.

What was fascinating was the reaction of both the head teachers and the coaching participants at these return interviews. It was the first time that they had seen the flowcharts mapping the initial interviews. For the two head teachers, this provided a moment of consolidation. Their professional lives are crammed with so many roles and responsibilities and the diagrams cut through this to help them refocus specifically on their coaching project. They recognised the degree to which their thinking was relational and chronological, even though they both considered that their original interview responses were somewhat muddled. The *theory of change* structure had provided a visual representation of a complex situation and plan of action. For the teachers and teaching assistants, the flowcharts revealed a grander plan than they had been fully aware of. Staff at both schools had willingly agreed to participate in coaching, but admitted to going along with it as a new CPD approach rather than truly appreciating how it had been conceived as part of a whole school strategy. The resulting interviews were expansive and informative. The interviewees frequently triggered new conversational threads as they reflected on what they could see represented on the flow diagram. They were able to determine what had come to fruition from the plan and what was more elusive. They added new arrows and notes to explain the experience from their perspective.

Analysis of these interviews indicated that inter-professional coaching can play a significant part in creating the conditions for bespoke workplace learning. Video-based coaching can create a neutral, non-judgmental space in which teachers' own interactional practices with children can be exposed and made open to co-construction, based on the relationship between pedagogic and communication knowledge and skills. Coaching formed a key

component of an ecology for focused professional development, providing participants with common understandings, a shared language, and a willingness to share ideas and be more open to self-evaluation and critique. It also provided some of the 'glue' that supported access and learning from other CPD and the development of new leadership and support roles.

Reflecting on the project now, it is interesting to speculate on what difference it would have made to use the *theory of change* flowcharts earlier in the process. If the coaching participants had gained an insight into the school leaders' intentions earlier, might they have engaged any differently? If the head teachers had had the flowcharts to review independently or share with their senior leadership team or governors, might the project as a whole have had a different shape and momentum?



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CASE STUDY 3: 'Co-curate North East': Digital transformations in community research coproduction programme

Lucy Tiplady and Ulrike Thomas, CfLaT

Study context

The 'Co-curate North East' project was an 18-month project funded by the Arts and Humanities Research Council under their Digital Transformations in Community Research Co-Production Programme. The project involved an interdisciplinary research team (encompassing Arts and Cultures, Heritage and Cultural Studies, Social Computing, Learning Technology Support and Education) and sought to bring together online collections, museums, universities, schools and community groups to make and re-make stories and images from North East England.

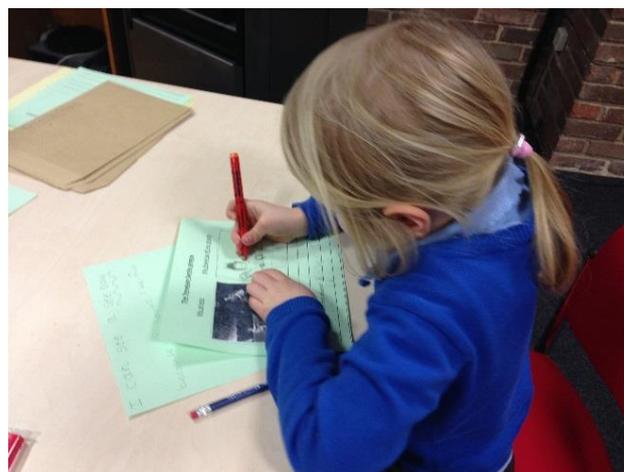
Here we examine one case study group that involved a partnership between a University library and a small rural first school in Northumberland. Previous conversations had suggested that the partnership would be desirable for both sides, as they had a joint interest in some local archives held at the library, moreover the school was interested in expanding its topic on the Victorians and developing knowledge of its local heritage.

School staff travelled to the library in order to meet the outreach officers, experience the archive at first hand and begin to co-plan a bespoke programme of activities for pupils. Over a period of a few months, involving visits on both sides, staff from the library and school designed the following activities:

- The pupils visited the library to experience the archives at first hand, take part in a curation activity centred on the archives, and be shown

around the library and University campus more generally.

- Victorian Day at school - school pupils, school staff and library outreach officers all dressed as Victorians, while pupils took part in a carousel of five Victorian activities (delivered by school and library staff).
- Again in Victorian dress, school pupils interviewed special guests from the National Trust and a descendant of the family who lived on the estate about the estate, the family and what it was like to live in the Victorian age. Library outreach officers recorded the interviews and 'sound bites' to include in the pupils' digital scrapbook.
- Pupils took part in an orienteering event on the historic estate, organised by a professional race designer. This involved working with photographs of the family taken at different parts of the estate and natural objects from the albums to solve the challenges.



Pupils' work was brought together in a Victorian scrapbook (in both hard and digital formats). The library staff led in compiling the scrapbook from pupils' work, then presented it to pupils to share with parents and families at a celebration event in school. The digital version was uploaded to the 'Co-curate North East' website to share with the wider community and other interested parties.

Why and how we used *theory of change*

A *theory of change* evaluation methodology was adopted across the 'Co-curate' project in order to work with seven of the groups (three education and

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four community groups). This methodology was chosen as it was important that the context of each group, together with the varied relationships and interactions would be given full consideration in the research. Researchers spent time visiting groups and talking to members about their motivations and ambitions for the group and how, if at all, they envisaged a role for 'Co-curate' in developing these ambitions. Groups that volunteered to become evaluation case studies participated in in-depth interviews from which a 'steps of change' document was produced by researchers. The interviews took place with key members of staff from both school and library, the steps of change list was shared with interviewees, and amendments and alterations requested. Although it was the researchers who produced the written documentation, it was always emphasised that the groups were free and, indeed, encouraged to make amendments so that the documentation reflected their own thoughts and interpretations. Group members then took on joint responsibility with the researchers for collecting data to support or refute the steps of change.

Data included lesson plans and examples of work produced, photographs, audio recordings and video, questionnaires and interview data.

In these ways it was hoped that the evaluation would be as participatory as possible, owned by the group members as much as the research team. In discussing educational reform, Connell and Klem state that the process 'encourages multiple stakeholders to contribute to articulation of the *theory of change*' (p. 95) and that this results in a '*local theory of change*' (p. 180).⁵ Towards the end of the project, the researchers carried out final in-depth interviews to discuss the data collected, revisit the steps of change and reflect upon the outcomes. The researchers encouraged project members to highlight where things had taken a different direction as well as discussing the intended outcomes; as Davidson (2000) argues, the 'unintended consequences are just as important to track down as goal-related outcomes' (p. 20).¹² This case study's steps of change can be seen in Figure 8.

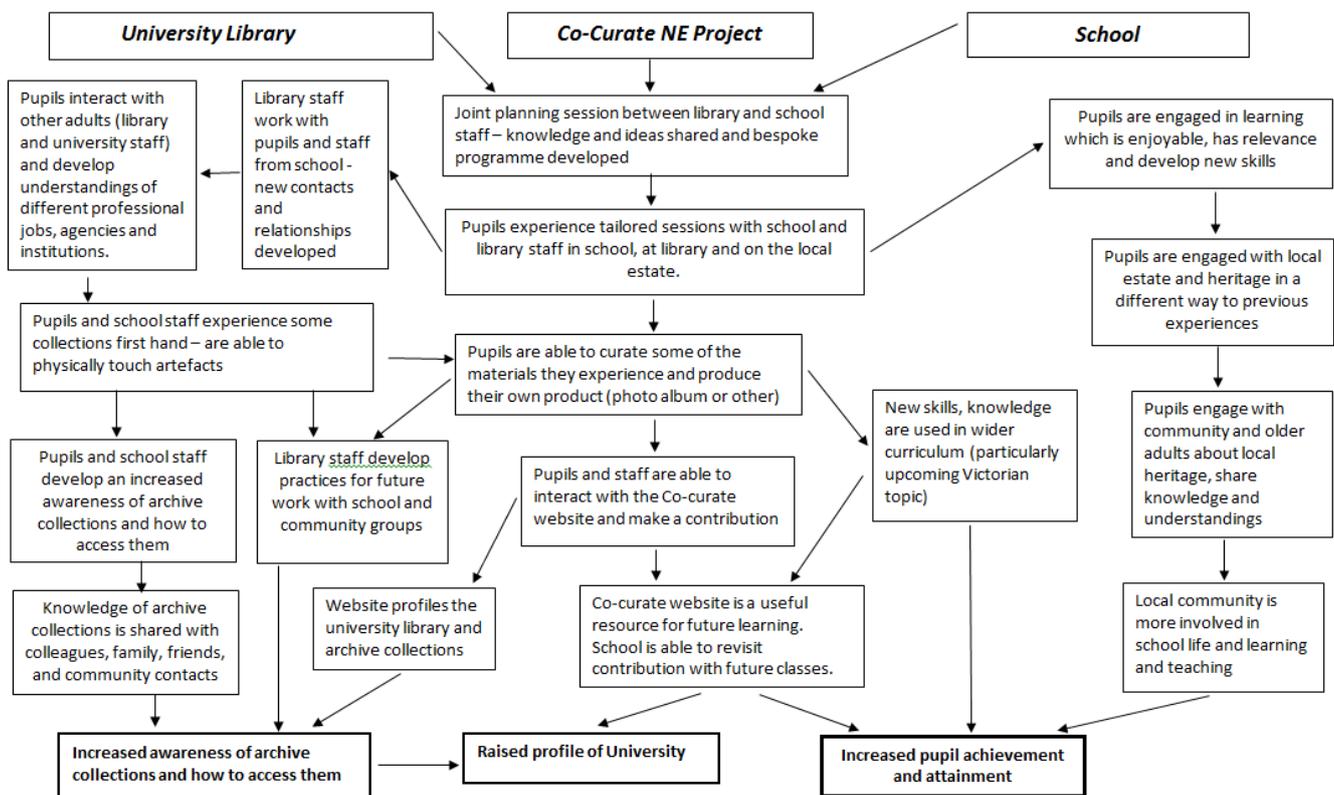


Figure 8 'Co-curate' steps of change

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What was the contribution of *theory of change*?

This case study brought together multiple partners and stakeholders who had not previously worked together. The *theory of change* methodology was primarily used as a research tool for evaluation but, as the project progressed, it became clear that it could also be used as a tool for co-production. Having those early conversations with project partners about their contexts, motivations and ambitions was not only important to the researchers' understandings; sharing those conversations enabled all partners to gain a deeper understanding of one another.

The steps of change diagram (Figure 8) shows broadly three strands of action: one that focused on the University library; a second focused on the school; and a third 'Co-curate' project strand. Nevertheless there was cross-over between these strands and certain actions that impacted in multiple ways across the strands. These relationships are indicated by arrows between boxes. The steps of change document became a written articulation of how the University library, school and University research team saw their own steps of change happening, either in relative isolation, or meshing and interacting with those of one another. It was not that all steps were a priority for all partners, but that there was a conversation and joint understanding of what was to be achieved and for what purpose.



By the end of the project, some of the steps had shifted. For example, the impact of visiting the University campus had proved more important to pupils than originally anticipated and the desire to

involve older members of the local community had not happened as planned, while links with the National Trust and a descendant of the estate family had been renewed. These new developments could then be discussed and understood by various partners within the framework of the *theory of change*.



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CASE STUDY 4: Evaluating change in school: ‘Open Futures 2011–13’

Pamela Woolner and Lucy Tiplady, CfaT

Study context

Open Futures is a skills and enquiry-based learning programme for primary schools in the UK that is intended to facilitate change in pedagogy and curriculum. There are four integrated strands: growit; cookit; filmit; and askit (‘Philosophy for Children’). We conducted formative evaluation of ‘Open Futures’ through the development of the programme from 2006 to 2010, reporting and advising on issues of procedure and implementation so improvements could be made. The final evaluation (2011–13) was intended to be a stand-alone evaluation of the impact of ‘Open Futures’ as a mature and clearly defined programme. This case study reports on the use of *theory of change* in the final evaluation. We focused on seven of the thirteen primary schools that began the programme in 2011 as curriculum partnership schools. These schools had committed to two years of initial training and development, to take place during 2011–12 and 2012–13, and their commitment included making a financial contribution to the cost of training.

Why and how we used *theory of change*

Our central aim was to examine the effects of ‘Open Futures’ within the programme schools, investigating the processes and outcomes at the schools to develop an understanding of how these impacts were achieved. The nature of the programme as complex and multi-strands suggested the need for a *theory of change* approach, as Dyson and Todd describe.¹³ We wanted the research to be collaborative, as far as possible, so that the time taken in asking busy school staff and students to commit to the research process would be well spent, creating a shared understanding that could be useful to the school as well as to us. There was a practical need for the school

communities to assist with data collection, since the evaluation did not make provision for many research visits to the schools, located in London, Manchester and Hull. Therefore, we used a *theory of change* approach to establish rationales for change in each context and to plan for the collection of quantitative and qualitative data to evidence change as it happened. Data included a combination of school-collected evidence (such as curriculum and organisational documentation, school statistical data, parent and pupil questionnaires) and researcher-collected evidence (such as interviews with staff and pupils and a staff questionnaire issued to all schools). Each school received three visits from the evaluation team, together with email and telephone support.

The first visit to each school centred on a semi-structured interview with the school head teacher, sometimes accompanied by the Open Futures Coordinator, intended to collect information to produce an individual *theory of change* for the school. We used a reference sheet of prompts on an outline flowchart (see Figure 9) to elicit information about the school situation, the actions underway due to ‘Open Futures’ and the intended outcomes.

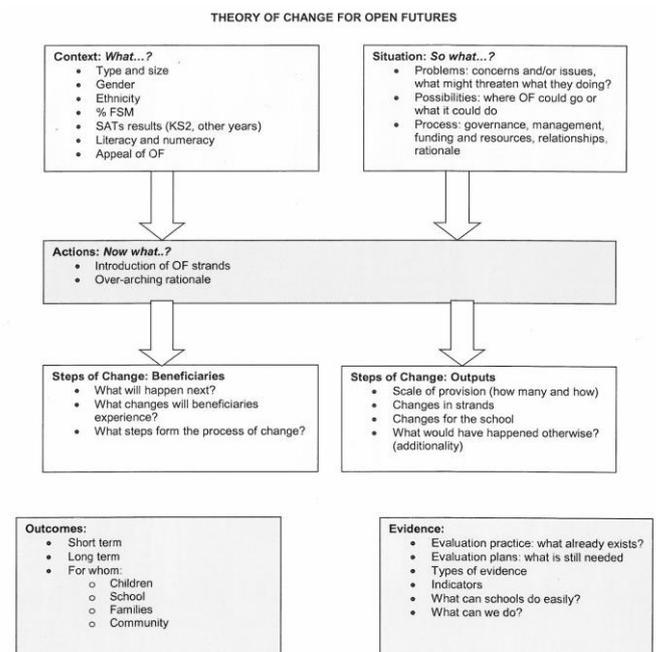


Figure 9 Theory of change for ‘Open Futures’

We probed how the actions envisaged in the *theory of change* were going to happen, recording ideas and

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supporting tangible and, apparently, sustainable educational change.

In terms of collaboration and co-construction of understanding, our use of *theory of change* to evaluate 'Open Futures' was broadly successful, but was more powerful in some schools than others and at certain points of the evaluation. At the stage when we first offered our representations to our school contacts, they seemed pleased with their *theory of change* documents, mostly accepting them without any alteration. However, we were concerned about how much they had engaged with them: could the absence of argument be because the schools had not evaluated the *theory of change* as a depiction of their situation? In two of the schools, this fear was allayed by subsequent active appropriation of *theory of change* representations. Perhaps, however, sharing our initial construction of the *theory of change* by email rather than in person limited their engagement and the possibilities for co-construction.



Despite these limitations, both the programme team and the lead participants in schools were keenly aware of the way the *theory of change* helped us all to value and understand a diverse range of evidence. Where they made active use of the *theory of change*, the two schools were particularly adept at passing us evidence in the form of photographs, written reports, teachers' plans and student work to demonstrate the process of 'Open Futures', as well as student evaluations, test and attendance data to show the products of the programme. Thus, for example, in relation to an aim of school and staff development within the programme, one school provided us with

curriculum documents indicating the embedding of 'Open Futures' strands in their existing curriculum, showing us displays around the school and evidence of staff planning that we could record.

It was notable how the framing of the research process in terms of *theory of change* enabled us to bring together the experiences of the different schools. We concluded that there was a fair degree of agreement across individual schools about the intended outcomes of engagement with 'Open Futures'. What seemed to be the case was that these intended outcomes were primarily centred on engaging pupils in learning, sometimes with a specific focus on developing independent learners, and secondly in engaging parents and, in some cases, the wider community in school life and the children's learning. Furthermore, we were able to propose a model of how change due to 'Open Futures' progresses. This shows the cyclical development we observed, where initial physical and organisational changes became established, embedding 'Open Futures' activities in the life of the school and supporting the development of better learning processes and teaching practices. Once the Open Futures approach is established, we concluded, there seems to be on-going, mutually dependent development of curriculum, organisation and space that gives the programme its particular strength as a method of enacting and embedding complex change within schools.

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CASE STUDY 5: 'Out-of-school activities and the education gap'

Karen Laing and Liz Todd, CfLaT

Meg Callanan, Jenny Chanfreau, Jonathan Paylor, and Emily Tanner, NatCen

Study context

There is a wide gap in educational achievement between rich and poor children in the UK, and ways to close it are being sought. One hypothesis is that increasing the number of clubs and activities in which children take part outside school hours would help to raise their attainment. On-going research by a team from Newcastle University and NatCen indicates that these activities after the school bell has rung can indeed help some children, in some circumstances, to do better educationally. It is hoped that using a *theory of change* framework will help us to explain why after-school activities might be important.

Definition of out-of-school activity:

'Learning activity outside normal school hours that children take part in voluntarily'

(Department for Education)

All schools in the UK were required to deliver after-school activities as part of their Extended Schools and Extended Services offer, until the policy changed in 2010. Evaluations revealed the importance of these activities to children and families, especially those most disadvantaged.¹⁴ We know from Sutton Trust research that the richest parents are four times more likely to pay for classes outside school for their children than the poorest parents.¹⁵ We also know that a high percentage (76%) of children of all backgrounds undertake a range of out-of-school activities, but that richer children do more. However,

to date there is little evidence of a causal link between doing more out of school and achieving within school, and little evidence of the mechanisms that might be at work. In this research we hope to rectify this situation.

This research, funded by the Nuffield Foundation, looks into how children aged 5–11 years spend their time outside school and the link with their educational achievement. To do this, we analyse data from the Millennium Cohort Study (MCS) to ascertain what activities some 7,000 children take part in, linking this to their attainment records on the National Pupil Database. A range of statistical techniques search for patterns in how children spend their time and the activities in which they are involved to find out whether and how this is related to their attainment. We want to see if this varies for different children, based on factors such as socio-economic group, gender and ethnicity. We also test the idea that disadvantaged children benefit from out-of-school activities to a greater extent than others. In addition to statistical analysis, we have collected qualitative data from head teachers, parents, pupils and activity providers in eight schools situated in the north east and south east of England.



Why and how we used *theory of change*

Just suppose for a moment that we find a link between out-of-school activities and attainment that seems to be more than just a chance association and may be causal. How do we know why that link occurs? Is it because children learn new skills that they transfer into the classroom? Is it because they are happier, fitter and more relaxed, thus in a better

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frame of mind for learning? So often, quantitative findings have us view a researched activity as a kind of black box, meaning that we have no idea what goes on to produce a statistical relationship between an input and an outcome. Conversely, if we do not find a link, does that mean that participation in out-of-school activities has no effect on attainment at all, for any children?

If there is a link between out-of-school activities and attainment, we need to find out the process or mechanisms by which the link is made in some children and in what circumstances. We need to know, for example, if different activities influence different young people in different ways. In effect, we need to know the *theory or theories of change* that might explain the connection between out-of-school activities and educational attainment.

Gorard (2012) suggests that five types of evidence are needed to establish causality: a statistical association; a sequence such that A leads to B; some measured effect; and an explanation of how the effect is caused.¹⁶ He states that the explanation must be easy to test and make the fewest assumptions necessary to provide a mechanism linking cause and effect. The latter is very often omitted from research, and it is this that is central to our research. We have, therefore, built *theory of change* models to investigate the strength of different academic theories in explaining any impacts and differences found.

Our research has three stages. First, we conducted a literature search for possible *theories of change* that might explain the benefits and dis-benefits of out-of-school activities for young people, and specifically for attainment. We presented these theories to academics and providers of activities to ensure that they made sense from the point of view of both research and practice expertise. Now we are using the Millennium Cohort Study (MCS) and National Pupil Database (NPD) to explore quantitative links between how children (including those who are economically disadvantaged) spend their time and their attainment. We are gathering qualitative data from interviews with head teachers, activity

providers, parents and children that seek to evidence possible theories of change to explain the relationship between how children spend their time and attainment. There is a wide range of possible theories, as outlined in Figures 12 to 14.

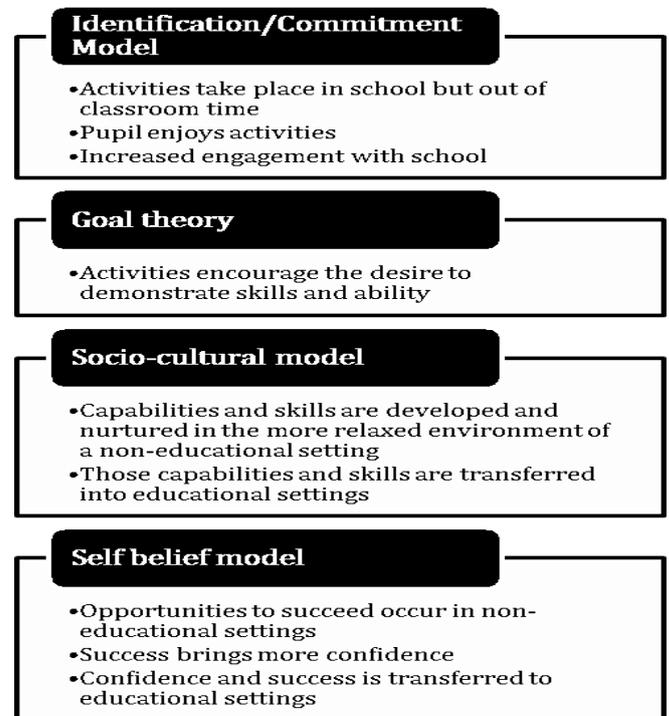


Figure 12: Child-related theories

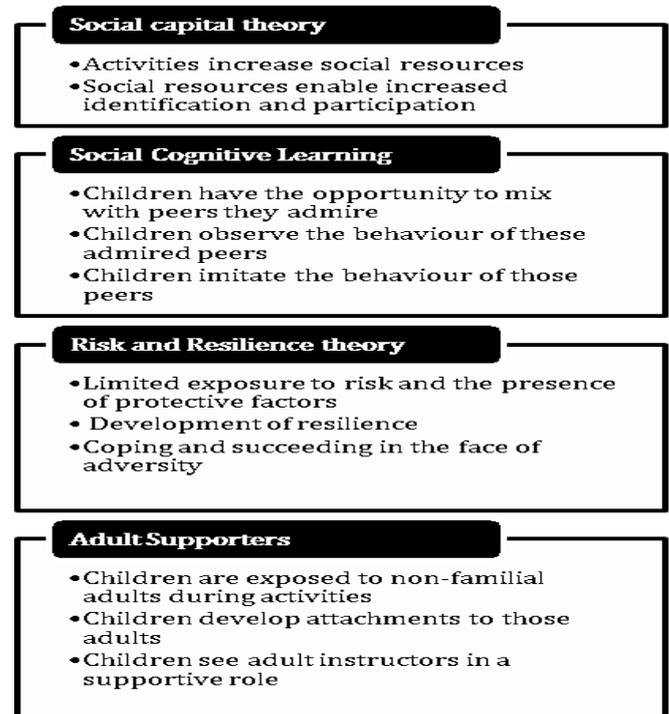


Figure 13: Social context theories

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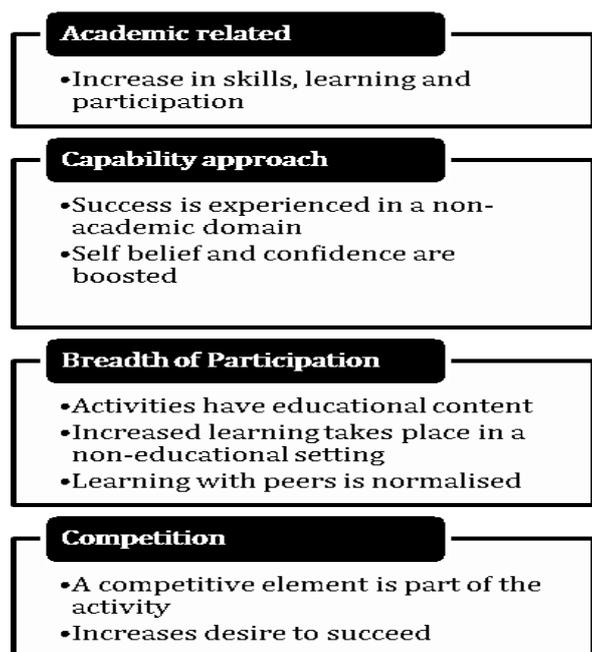


Figure 14: Activity-related theories

What was the contribution of theory of change?

So far, in terms of the contribution of *theory of change*, there has been a realisation of the number and variety of possible theories. Analysis of quantitative and qualitative data to find support for any of the theories is an interesting and challenging process. The pre-defined variables in the quantitative datasets limit the theories we can explore using those data alone. In the interview transcripts, however, we have been able to identify how people, including children, have their own theories about the link. For example, one child (aged 6) told us that she was certain that her after-school club helped her with her schoolwork as it encouraged her to be more active, kept her fit and healthy, and thus she slept well and was able to concentrate better in the morning. For another child (aged 10), learning scripts as part of drama club improved her spelling, which meant writing at school was easier. These mechanisms described by the two girls are very different, but both girls were sure that their attainment was better as a result of attending clubs. This leads us to the difficult question of what mechanisms and what theories could be explanatory and worth exploring further.

Weiss (2000) believes that starting with people's beliefs is a good place.¹⁷ Nevertheless, this may not be helpful in this study other than to demonstrate the

complexity of social change. We are likely to find evidence for many of the theories, and there might be no clear rationale for one theory over another. It may be that different theories work in different circumstances for different children. In the current drive to focus resources on 'Closing the Gap', how can this help us to decide where best to target out-of-school activities? Or to choose where to concentrate scarce resources? The study is ongoing, and we need to confront and tackle these issues in the coming months.



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Using *theory of change*: Key themes

Karen Laing, Liz Todd and Pam Woolner, CflaT

Using *theory of change*

The presented case studies indicate that a *theory of change* framework can be used in various ways, for different reasons and in different contexts. Many benefits have been demonstrated. A *theory of change* approach can enable better planning. It can highlight gaps in implementation, prevent project drift and help maintain a focus on outcomes rather than delivery, in other words on what you want to achieve. It can be dialogical, challenging assumptions and encouraging consensus, and is flexible enough to be able to indicate where change is needed and incorporate change in terms of evaluation. It might be the most effective approach to evaluation when no baseline data are available, expected outcomes are likely to outlive the project, or outcomes are hard to define.

That said, *theory of change* is often critiqued; it may be the case that simple outcome measures are all that is needed. It is not always easy to use a *theory of change* approach. For instance, there are often several theories put forward by project workers, and it is difficult to know which to choose. The process of developing a *theory of change* can be carried out badly, and it is a methodology that has been insufficiently theorised by researchers. Some critics argue that only theories based on academic evidence (not practitioner experience and expertise) are valid, and others that no causal claims can be made without the inclusion of RCTs in an evaluation plan. In the real world, however, and particularly in educational and community research, it is often not possible to include RCTs. Even if RCTs are available, they are unlikely to capture the multiplier effects of multi-stranded initiatives. So how can we use our *theory of change* to be confident that it is our actions that have generated the outcomes we predicted?

Collecting evidence

Theory of change uses a range of various kinds of data in the monitoring or evaluation of the steps of change, from the starting situation to the outcomes. One advantage of *theory of change* is that both quantitative and qualitative data can be used together. Another is that anecdotal evidence, such as human stories of impact on individuals or groups, can be used as data. These data are valued as part of the portfolio of evidence, and thus take on an importance not normally accorded by a traditionally designed evaluation. These human stories can provide strong evidence of a particular step of change. Nonetheless, *theory of change* does not exclude traditional methodology and RCTs can be used effectively to supply evidence, where appropriate, within the framework.

When all the evidence that is available or has been deliberately collected has populated each step of change (in other words, fills the evaluation plan), judgement needs to be made about whether the *theory of change* can be supported. The question might be asked as to whether there is enough evidence that all the earlier steps are going in the right direction to suggest that longer-term outcomes have a good chance of materialising. This can be seen either as a method of evaluation that lacks scientific objectivity or a realistic way to look at causality in real world research.

Enabling collaboration and shared vision

Previous studies using theory-based approaches have found that these approaches can increase stakeholder engagement in evaluation¹⁸ and can enhance participation.¹⁹ That *theory of change* demands people's active participation can be seen as both positive and a challenge. The collaborative stance that we take recognises the expertise of practitioners in the world in which they work, and aims to involve them in dialogue and partnership. Nevertheless, this can be challenging for us as researchers. Practitioner expertise and thinking is often shaped by deeply held, taken-for-granted assumptions. This means, sometimes, that

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practitioner theories may be based on stigmatising, disproven or historical views of families or communities, which might not be accurate or appropriate. Our role, therefore, needs to be one of gentle challenge, of critical friend,²⁰ yet this relies on our own level of critical awareness and knowledge of research evidence, which may also not be always accurate, unbiased, contemporary or appropriate. We need to learn to see things from the point of view of those with whom we are surfacing the *theory of change*.

We may think that a collaborative theory of change framework is supportive and respectful, yet find it is not liked or understood by practitioners. Project workers used to performative models of reporting (measures of inputs and outputs) can find *theory of change* uncomfortable, unless they have already problematised the performativity culture within which they work. Some fail to see how it can be evaluation if the main focus is not solely on outcome measures.

Theory of change as visually mediated encounter

We see the success of our *theory of change* methodology as partly due to its visual nature. It is, therefore, understood as a type of visual research method. We suggest that the activity of developing a *theory of change* diagram succeeds in part because it involves the elements that we, as well as others, have argued to be the strengths of a visually mediated approach to data gathering with participants. This includes providing ‘something to look at’,²¹ ‘bridging the gap between the worlds of the researcher and the researched’²² to build understandings and make connections,⁷ partly through enabling participants to ‘set the agenda, to decide what is important, and to work at their pace’.²³

This identification with visual methods might seem surprising to those who are more familiar with the more obviously visual techniques practised within this approach, such as participant photography or drawing. However, as we have argued previously, activities that make use of diagrams or spatial arrangement can demonstrate the strengths often associated with such methods, including immediacy

and the possibility for iterative research designs.²¹ Moreover, it has been noted that the particular visual immediacy of photographs may be problematic in research contexts as they ‘encourage us to tell singular truths about them’.²⁴ The widely suggested solution to this problem, of participatory approaches to data gathering and analysis,²⁵ are worth bearing in mind as we outline how we have facilitated the shared construction of ToCs in a number of projects. However, it is also interesting to note that there is a tradition of using more abstract, spatial approaches to understanding and developing ideas. These range across the therapeutic methods of Personal Construct Theory²⁶ and the use of concept-mapping as a tool for learning²⁷ to methods used by focus group facilitators to bring participants’ ideas together such as the Ishikawa or fishbone tool,²⁸ and interviews mediated by timelines²⁹ or diamond ranking.³⁰ The advantages of these methods might be explained through reference to the established benefits of abstraction within mathematics and science, where the potential of diagrams are reasonably well-understood³¹ and, in fact, the problems of visualising ideas in too literal and particular a manner have been noted.³²

How to build on theory and explain change

In order for a *theory of change* to be fully effective, regardless of the way it has been developed and used, monitoring and evaluating the theory is essential. This can be done irrespective of whether or not the research is an ‘evaluation’. Furthermore, traditional methodological techniques have led to inconclusive results when evaluating complex, multi-stranded, contextually situated interventions or ‘wicked’ problems. Theory testing is an essential component in theory building. Collecting data to build a portfolio of evidence can enable a set of different conclusions to be considered. Examining which steps in the chain are evidenced or otherwise can enable a researcher to ascertain whether an intervention has failed due to implementation failure or theory failure.

A theory that is demonstrated to hold ‘true’, in the absence of evidence to the contrary or coherent alternative explanations, can go some way to explaining what works, for whom and in what circumstances. Confidence in the causal mechanism

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will depend on the level of warrant necessary or acceptable for the intervention being evaluated. Formative and summative conclusions can be made by examining evidence for the chain of steps of change, thinking of them as if they were a line of dominoes. If all the dominoes fall in the right direction (meaning there is affirming evidence for each step), it seems likely that the actions will lead to the outcomes. If the conclusions of one initiative is compared to the conclusions of several similar initiatives, and the dominoes act in a similar way, a theory can be built that assumes that any initiative of that type is likely to lead to similar outcomes.

Theory-based methodology is still developing. The more we have used it, the more questions we ask and the more possibilities are open to us. In the examples in this book we have seen several innovative uses of *theory of change*. In case study 1, a *theory of change* framework for evaluation is making it possible to look at the likelihood of projects bringing about cultural change to tackle alcohol misuse.

In case study 2, using *theory of change* gave head teachers, teachers and teaching assistants the opportunity to see coaching in a wider sense than professional development, and as a key part of school strategy. Case study 3 demonstrated the use of *theory of change* as a process of co-production with multiple partners, each responsible for their own intermediate outcomes. In case study 4 *theory of change* was adopted by schools as a method that could help them review their development plan, as well as for evaluation. The final case study raises questions about how far *theories of change* are helpful in exploring the mechanisms by which inputs lead to outcomes.

If this booklet has inspired you to consider using a *theory of change* framework in your work, the following key questions contained within figure 15 may help you to decide the direction you take.

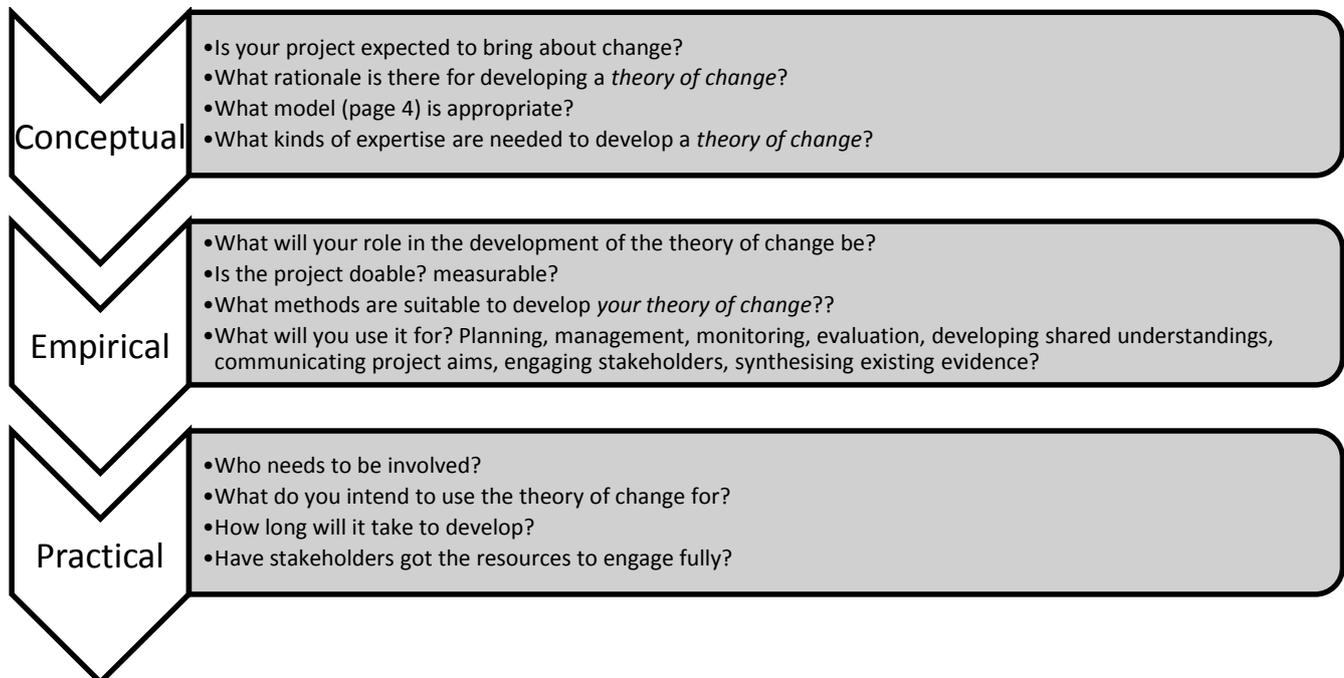


Figure 15 Using a theory of change in your own work

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THEORY-BASED METHODOLOGY: USING THEORIES OF CHANGE FOR DEVELOPMENT, RESEARCH AND EVALUATION



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