Using Realist Synthesis to Develop an Evidence Base from an Identified Data Set on Enablers and Barriers for Alcohol and Drug Program Implementation

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Abstract
The purpose of this paper is to show how “realist synthesis” methodology (Pawson, 2002) was adapted to review a large sample of community based projects addressing alcohol and drug use problems. Our study drew on a highly varied sample of 127 projects receiving funding from a national non-government organisation in Australia between 2002 and 2008. Open and pattern coding led to the identification of 10 barrier and nine enabler mechanisms influencing project implementation across the sample. Eight case studies (four demonstrating successful implementation; four demonstrating less than successful implementation) were used for depth exploration of these mechanisms. High level theories were developed, from these findings, on implementation effectiveness in projects addressing alcohol and other drug use problems.

Keywords
Realist Synthesis, Evidence Base for Decision Making, Enablers and Barriers, Drug and Alcohol Programs

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Using Realist Synthesis to Develop an Evidence Base from an Identified Data Set on Enablers and Barriers for Alcohol and Drug Program Implementation

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The purpose of this paper is to show how “realist synthesis” methodology (Pawson, 2002) was adapted to review a large sample of community based projects addressing alcohol and drug use problems. Our study drew on a highly varied sample of 127 projects receiving funding from a national non-government organisation in Australia between 2002 and 2008. Open and pattern coding led to the identification of 10 barrier and nine enabler mechanisms influencing project implementation across the sample. Eight case studies (four demonstrating successful implementation; four demonstrating less than successful implementation) were used for depth exploration of these mechanisms. High level theories were developed, from these findings, on implementation effectiveness in projects addressing alcohol and other drug use problems. Key Words: Realist Synthesis, Evidence Base for Decision Making, Enablers and Barriers, Drug and Alcohol Programs.

Policy makers and project funders are increasingly impelled to ensure that decision making in health care is based in evidence (Giesbrecht & Haydon, 2006; Ian, 2002; Lewis, 2005; Loxley, et al., 2004). Since its inception in 2001 the Alcohol, Education and Rehabilitation (AER) Foundation has funded more than 1,000 projects intended to reduce the burden of harm arising from alcohol and/or inhalant misuse in Australia. In 2008, the AER Foundation commissioned research to identify enablers and barriers to implementation across a diverse range of drug and alcohol related projects. In doing so they aimed to inform future investment in community-based work on alcohol and other substance use problems and issues.

A major challenge of this research was to identify a strategy to systematically interrogate and make sense of a diverse set of project records pertaining to a heterogeneous sample of projects. This required us to adapt a methodology that would enable the identification of the many contextual factors associated with successful implementation across a broad range of activities. We were also looking for an approach that would allow us to develop theoretical propositions regarding requirements for successful project implementation in the alcohol and other drug (AOD) field.

The paper briefly describes realist synthesis (Pawson, 2002; Pawson, Greenhalgh, Harvey, & Walshey, 2004, 2005) and it applications, how we adapted a realist synthesis
methodology to interrogate and make sense of a large and *messy* dataset, and the mixed methods approach we utilised. Project findings are discussed in detail elsewhere (MacLean, Berends, Hunter, Roberts, & Mugavin, 2011). The adapted realist synthesis methodology enabled us to identify commonalities and differences in implementation success across four diverse categories of intervention, and to develop suggestions to support future project planning and implementation. We conclude by outlining some limitations of our approach and directions for future work involving realist synthesis.

**What is Realist Synthesis?**

Realist synthesis is a research methodology developed as an alternative to a systematic review as a means to better understand the complexities of social interventions (Pawson, 2002; Pawson, Greenhalgh, Harvey, & Walshe, 2004; Pawson, Greenhalgh, Harvey, & Walshe, 2005). It builds on the stream of program evaluation that examines the logic or theory underpinning any given program and uses multiple methods to test the program theory (Pawson et al., 2005). Realist synthesis also tests the contexts in which the logic/theory is most effective. Its catchcry is to examine “what works, for whom and in what circumstances, in what respects and how” (Pawson et al., 2004, p. v). It is generally used to analyse a single *mechanism* which generates the effect of an intervention, resulting in a theoretically based explanation of how projects work.

The realist synthesis methodology examines complex social interventions by identifying the important components that describe the theory underlying the social intervention. In order to explain the realist synthesis methodology, it is helpful to explore what Pawson et al. (2004) meant when describing complex social interventions. A complex social intervention can be described as a theory of action, guided by an underlying rationale of why the action will influence or create change. For example, the concept of *incentivisation* was developed to describe a range of social interventions targeting smoking cessation (Pawson, 2002). There are a number of actors involved in any intervention, who may include staff, consumers, program/service funders, the community or key partners. The motivations, intention and interactions of these actors will influence the direction or impact of an intervention. For example, if staff and key partners have different expectations of a program, the direction of the program may become unclear or have less impact.

In line with this, complex social interventions are situated within complex social situations; informed and influenced by the social and structural contexts within which they are enacted. For example, incentivisation interventions targeting smoking cessation in young people may be applied within a regional setting.

The complex social intervention is a living, active and interactive theory. It contains a number of steps or processes that are connected and may influence each other. It may have a linear flow, or may operate in an iterative, cyclical or non-linear manner. It can be modified and adapted throughout the implementation process, influenced by the actions of people involved and other contextual considerations. Finally, complex social interventions evolve as stakeholders become more familiar or aware of the possibilities (impacts and outcomes) associated with the theory of action.

Pawson et al. (2004) use the category of ‘context’ to describe the direct environment in which the intervention is being implemented. Context can describe
different levels of intervention, including a local level (e.g. skill gaps); a population level (e.g. target groups, including youth or rural); or a political level (e.g. policy environments).

The category of outcomes is used to describe the connection or result of interaction between the steps (or processes) involved in the complex social intervention. This is the change that was intended (or unintended) as a result of the initial action.

The element of realist synthesis methodology that allows us to understand how the complex social intervention achieves its outcome is the mechanism. Realist synthesis is built on the premise that it is not programs themselves which have effects, but rather how or why they act on individuals or groups to generate change. Pawson et al. (2004) use the term mechanism to describe the factor or element that connects actions, situates them within the relevant context, and links them to the outcome. This notion allowed us to compare projects which were based on different activities however appeared to share a broadly-defined mechanism, such as engagement of community or other agencies as partners in their endeavours.

The first step of a realist synthesis review is to clarify the scope of the review through a rigorous interrogation of the review questions, the nature of the intervention, the context and circumstances in which it is used and any other factors (including policy) that may impact its application. It involves defining and challenging the theories underpinning the intervention and designing an evaluative framework through which to explore the intervention.

The second step in a realist synthesis review is to search for evidence about the intervention, primarily through a review of published literature, and to identify a defined set of theories about the intervention. A further review of the literature is used to test the usefulness of these theories in describing the social intervention. Step three involves the appraisal of primary studies to examine the relevance and rigour of the research. In this stage, data extraction forms and checklists are developed to support a systematic approach to data extraction, to examine the theories underpinning social interventions.

The next step is to synthesis the collected data to refine the theory of what works, for whom, how and under what circumstances. The final step is to test these theories in practical settings and to invite feedback from practitioners and experts on the most appropriate recommendations for practice arising from the outcomes of the review.

Each step should be revisited as more information is uncovered, or as different understandings are developed. It is a complex and multi-layered approach that ultimately yields a breadth of information about what works, for whom and in what circumstances.

In the following sections we describe where realist synthesis is useful and how we applied realist synthesis for this project. In brief, our approach utilised different data sources and data collection strategies to Pawson et al (2005), using primary data to inform and refine the development of theories, published literature to challenge and confirm these theories, and a case study approach to test these theories in practical settings. Further to this, we adapted the approach to examine multiple social interventions, and to explore common theories that may operate across these interventions.
Where is Realist Synthesis Useful?

Outcomes of public health interventions are invariably affected by the contexts in which they are applied (Jackson & Waters, 2005). Unlike systematic review, which seeks to understand whether and how an intervention works or does not work (Jackson, nd), realist synthesis is designed to support the generation of theories about how contexts affect outcomes of various kinds of program effects. Realist synthesis is useful when assessing whether and how a particular program or social intervention can be transferred to a new situation, audience or context, and the critical factors that are required to make that program or intervention successful. It embraces the use of mixed methods to enhance the rigour and validity of the research (Sheldon, 2005). Realist synthesis is particularly useful when dealing with a single complex social intervention that has multiple components, operates across multiple sites, and involves multiple actors or agents.

McCormack et al. (2006) used realist synthesis to explore the theories underpinning practice development as a strategy of introducing or managing change in the health sector, and to examine how it is implemented across a range of contexts, using a range of strategies. The purpose of their research was to provide an evidence base for the development of a state-wide model of practice development for the health care sector. McCormack et al. identified a number of mechanisms that facilitate the implementation of practice development processes, such as strong support from staff and management.

Our Application of Realist Synthesis

The AER asked the Health Services Research and Evaluation team from Turning Point Alcohol and Drug Centre to conduct an independent review of the projects the AER had funded from 2002 to 2008 (from inception to the most recent funding round), and to develop an evidence base regarding the barriers and enablers to successful program implementation in the alcohol and other drug field. This project was of great interest as it constituted a large scale exploration of the factors that may influence project success, and to ultimately and ideally develop a guide to assist services in the future in strengthening their program and project implementation across a diverse range of circumstances.

Our intention in this project was to identify barriers and enablers to implementation through an examination of interventions related to alcohol or inhalant use that were undertaken in community health services across Australia. Realist synthesis provided a systematic approach to analysis that allowed for the contextual complexities and diversities associated with AER funded projects.

The project was guided by a Steering Committee composed of two representatives from the AER executive, including staff with strong research backgrounds, and three from Turning Point. The group met throughout the duration of the study and was consulted on key methodological and procedural decisions. The project was reviewed and approved by the University of Melbourne Human Research Ethics Committee.

Developing a Framework for Analysis

The first steps in the project were to develop a framework for analysis. In keeping with Pawson et al. (2005), we utilised an iterative and reflective process that involved the
Steering Committee in discussions around methodological issues and interpreting findings at a number of stages across the project life course. For example, we worked with the Steering Committee to develop a rationale for the identification of projects for inclusion in the study sample. The Steering Committee also provided advice on the development of analytic categories and on presentation of research findings.

The AER’s database of 1,000 completed projects was the source of all projects considered within the study. A group of 127 completed projects was identified for the study sample through assessing each project against agreed exclusion criteria. Initial exclusion criteria included projects costing less than $20,000 (because they were subject to different reporting requirements); capital works projects; conference attendance and individual professional development opportunities; festivals and events; research; and projects related to program or service administration.

A second round of exclusion involved assessing remaining projects against two criteria: relevance and rigour (Pawson et al., 2005). Programs were considered relevant where their intervention was similar enough to other projects so that something could be learned about how they worked in comparison with others. We interpreted rigour as having sufficient documentation from which to assess whether project objectives were met, defined as the presence of either a final project report or external evaluation in the files.

These criteria may have resulted in a biased sample, given that organisational capacity may influence rigour of reporting and documentation within projects, and may be associated with an increased likelihood of successful implementation. These dataset limitations were acknowledged from the outset, but unable to be resolved further given the scope of the project was limited to available, existing documentation. Once the sample of projects for analysis was identified, our first tasks involved discussions to clarify the scope of the research, a review of available documentation on projects, and the establishment of a database to extract and analyse data.

**Appraise Primary Studies and Extract Data**

Our initial task was to identify the categories of intervention in a range of implementation contexts. The next step was to conduct a comprehensive review of all project documentation associated with each of the projects. Project documentation included project contracts, interim or routine reports, final reports and evaluations conducted by external agencies. The raw data were inputted into a database with accompanying coded data. The coding system for this stage of the project was developed with reference to the literature review, using thematic analysis, and allowing for flexibility in recoding and developing new codes as necessary (Hansen, 2006). This stage of the project involved two researchers to review a sample of project documentation and establish a coding schema to describe the data.

In keeping with the strategies proposed by realist synthesis, we conducted an exploratory review of the literature surrounding the identified interventions. This literature review challenged and confirmed our analytical framework and provided further understanding of the different mechanisms that may influence project implementation. While analytic categories were developed and refined during data collection and analysis, the following information was gathered for each project:
• The context (C) of each project (including funding amount, time frame, urban, rural or remote location, populations targeted)

• Project mechanism (M) (identified through analysis of enablers and barriers)

• Outcomes (O) (whether projects met, partially met, did not meet or failed to provide evidence of meeting agreed objectives)

We identified four categories of intervention: a). organisational enhancement, b). sector training, c). community education and prevention, and d). engagement and treatment services. Each project was identified as belonging to one of these categories of intervention. Table 2 provides a definition of each of these categories.

Table 2. Categories of Intervention

<table>
<thead>
<tr>
<th>Intervention type</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhancing organisational systems and processes</td>
<td>Projects which worked to improve organisational responses to AOD through enhanced systems and processes</td>
</tr>
<tr>
<td>AOD training and workforce development</td>
<td>Projects which aimed to improve AOD service delivery or awareness through provision of training to the AOD workforce or to other service providers, for instance teachers or pharmacists</td>
</tr>
<tr>
<td>Community education and prevention</td>
<td>Projects that attempted to raise AOD awareness, prevent misuse or effect policy change by influencing the population or a large group within the population i.e. Indigenous people, or through local community development and planning</td>
</tr>
<tr>
<td>Engagement and treatment</td>
<td>Projects designed primarily to engage and influence individuals and groups who misuse AOD or who are at risk of doing so, or to provide treatment and aftercare</td>
</tr>
</tbody>
</table>

Identifying what works, in what respects and how?: We were concerned to identify different mechanisms within each intervention, rather than focusing solely on the range of theories driving each social intervention. Project mechanisms were developed through a complex process involving two levels of analysis. This occurred through the data collection phase as an iterative process involving reading literature that categorised factors and through drawing on categories in the data.

Given the nature of the study, a predominantly qualitative approach was required to identify the common and differentiating features influencing project success. It was not feasible to develop an understanding of project mechanisms prior to analysis of the data. For this reason an open coding system was used to record enablers and barriers as data collection proceeded (Hansen, 2006; Saldana, 2009). Broad program mechanisms could not be identified until all projects had been considered and an initial data analysis stage had been completed to identify barrier and enabling factors.

First cycle coding entailed the development of provisional and descriptive codes to categorise descriptions of enablers and barriers to successful project implementation recorded in project files (Saldana, 2009). Barriers and enabling factors were clearly
identified for some projects; in others the researchers were required to make interpretive decisions about what constituted barriers and enabling factors from available documentation. Enablers and barriers recorded for only one project were excluded prior to further analysis. Fifty-one enabling factors and 54 barrier factors were identified.

Second cycle coding entailed pattern coding to identify broad mechanisms that operated across a number of projects. Pattern codes are used to “identify an emerging theme, configuration or explanation. They pull together a lot of material into a more meaningful and parsimonious unit of analysis” (Miles & Huberman, 1994, p. 69). Enabling factors were grouped as nine key pattern codes and barrier factors were grouped as ten key pattern codes. For consistency with realist synthesis terminology these pattern codes have been termed mechanisms.

The number of mechanisms identified across projects through thematic analysis created a challenge for the project, as there were far more mechanisms in this project than in a typical realist synthesis (Pawson et al., 2005). This was because studies included in our sample were not selected on the basis of sharing an underlying theory or mechanism, but rather mechanisms were identified within a set sample of projects.

Nine enabling and ten barrier mechanisms were identified through the analysis. These mechanisms included such things as project planning and design; research and data collection; funding and resourcing; staffing and leadership; organisational governance and capacity; staff team communication and relationships; external communication and relationships; sensitivity to service users and settings; participatory approach to service delivery; and, wider service system challenges. As described above, each mechanism encompassed a range of enabling or barrier factors, for example, the enabling mechanism of external communication and relationships included factors such as community respect and enthusiasm for the project; involvement of local elders (in Indigenous projects); collaborative or consultative project development; partnerships between other agencies; networks with agencies to access participants; alignment with political or policy events; political or government support; or public relations activities such as generating media interest.

In keeping with the strategies proposed by realist synthesis, we conducted an exploratory review of the literature surrounding the identified interventions. This literature review challenged and confirmed our analytical framework and provided further understanding of the different mechanisms that may influence project implementation.

Analysis of these projects was supplemented with a further, targeted, review of literature documenting factors that facilitated or impeded project implementation. The remainder of this section discusses the steps involved in our analyses, including how we determined what worked, our identification of context and our assessment of factors that impede or facilitate project implementation.

In order to measure the outcomes of projects (what works), we developed a methodology to ascertain successful project implementation; defined as meeting all project objectives. We decided to record this quantitatively, to enable comparison across projects. We used the objectives listed in project service agreements, wherever possible. Where objectives were generic and did not reflect actual project activities we used records of anticipated outputs to measure success.
A global score for each project reflecting successful project implementation was identified using these objectives. We determined that *successful implementation* included projects in which 100% of objectives were met (n=76 projects); *partially successful implementation* included projects in which 75% to 99% of objectives were met (n=14 projects); and *less successful implementation* included projects in which less than 75% of objectives were met (n=36 projects).

These three categories were collapsed into two for further analysis (projects where 100% of objectives were met and projects where less than 100% of objectives were met). Although this measure effectively provided indicative results for our purposes, it is a subjective measure impacted by the quality and detail contained within project documentation. While our sample was restricted to projects that included evaluations, the quality and focus of these evaluations varied considerably. For a discussion of project findings, see Maclean et al. (2011).

**Identifying what works for whom and in what circumstances?**. Project documentation provided us with information about the contexts that the social interventions were implemented in, including project location according to postcode and project target group (workers, Indigenous people, culturally and linguistically diverse communities, youth, inhalant users, communities experiencing socio-economic disadvantage, forensic service users, older people and alcohol users).

Data were subsequently analysed in relation to five project contexts, which were selected because they were considered likely to be of interest to alcohol and other drug professionals, policy makers and others designing and delivering interventions. The first three were identified by the target populations they were designed to influence, including young people; Indigenous peoples; and inhalant users. These groups in particular were selected because the AER had prioritised funding to these groups from 2002-2008. The second two contexts were defined by geographic location, and include projects based in agencies that were based in capital cities; or based outside capital cities (including rural and remote areas). These contexts were selected due to an interest in exploring implementation differences by location.

Using the Australian Standard Geographical Classification (2006) from the Australian Bureau of Statistics, we allocated each funded agency to its Statistical Division, determined by postcode. This procedure allowed us to differentiate an additional two mutually exclusive categories of projects; those based in capital cities and those based outside capital cities.

**Synthesize Evidence and Draw Conclusions**

Having quantified the data, statistical analysis was used to identify the distribution of enablers and barrier mechanisms by project type and contexts. Inferential statistical analyses were used to assess significant associations between project success (defined as meeting 100% of objectives) and other variables including contextual considerations, project types, and enabling and barrier mechanisms. This allowed us to identify key elements associated with project success.

Our final stage of analysis included a *unique case analysis* to further explore the way these mechanisms operated to facilitate or impede project success. Although not
part of Pawson et al’s (2004; 2005) formulation, others have discussed the utility of case studies to explore and refine program theories developed through realist synthesis. For instance, Koenig (2009) and Leone (2008) use case studies to identify and explore theoretical models of what works for whom in what circumstances. Koenig suggests that evaluators might use case studies to test hypotheses and to refine or generate theory on how and in which contexts programs based on particular theoretical constructs may be seen to produce specific effects.

This unique case analysis was followed by cross-case analysis examining themes, similarities and differences across cases. Stake advises that case studies should be selected not to be representative but because they may “provide insight into an issue or refinement of theory” developed for the project (Stake, 1998, p. 88). We selected two case studies from each project type as identified in Table 1; one exemplifying successful implementation and the other providing an example of a project which encountered difficulties in implementation. We also selected case study projects that allowed us to explore how a range of contexts impacted on implementation, and included at least one project involving each of the targeted populations and locational contexts.

From this we identified skeletal theories underpinning successful project implementation within given contexts, and across contexts and intervention categories. For example, we identified that the majority of projects (78%, n=99) that achieved 100% of objectives noted community and/or elder enthusiasm (in the case of Indigenous projects) for the organisation and project, while only 22% of projects that achieved less than 100% of their objectives received similar support. These data supported the generation of a theory that community support is critical to successful project implementation in the alcohol and other drug arena.

The final stage of a realist synthesis approach is the dissemination of findings and further testing of the identified theories. We have commenced this process but expect the testing of theories to occur over time as we evaluate the implementation of more projects within the alcohol and drug sector.

Conclusions

Our adaptation of the methodology demonstrated its flexibility and usefulness in identifying “what works, for whom and in what circumstances, in what respects and how” (Pawson et al., 2004, p. v). Although the findings of this project are presented elsewhere (MacLean et al., 2011), it is relevant here to note that the realist synthesis method enabled the identification of common mechanisms impacting project success across a diverse range of projects. Using the formulae “X works well if A, B and C are present” and “X does not work well if H, I and J are present”, we identified a range of theories operating within this intervention sample. For example, from the analysis we identified that engagement and treatment interventions are successful when effective partnerships and relationships with external agencies are present, where local networks are utilised and there is sensitivity to service users and treatment setting. Engagement and treatment interventions are less likely to be successful where the complexity of service users is not fully understood, where planning and design are insufficient and when projects are unable to find or retain staff.
Limitations of our Approach

The intention of the project was to quantify mechanisms in order of the frequency they were observed in projects overall, and then by projects of various types and operating in various contexts allowing both overall conclusions to be drawn and comparisons between different types of projects to be made. These findings were then given greater depth through the qualitative case study analysis, which also enabled us to illustrate how mechanisms such as engaging partners in project worked (and at times did not work).

Although we explored a sizeable dataset, project numbers made it difficult to achieve statistical significance in relation to correlations between successful implementation and the contextual considerations identified for analysis. Furthermore, when divided by intervention type the sample sets became quite small. This made it difficult to draw conclusions about intervention types operating within specific contexts (Pawson et al.’s, 2004) C+M=O). Whilst this method did provide us with a good picture of the most commonly observed mechanisms across interventions, we did lose some of the depth and detail associated with each mechanism.

Statistical analyses, although helpful in communicating project findings, are less convincing for this methodology. Subjective measures were introduced to quantify project outcomes, sometimes with limited information. Therefore the strength of the statistical significance identified is potentially deceptive. We suggest that caution is exercised when attempting to apply statistical measures in a realist synthesis analysis.

Future Application

Although our dataset was large in total, the numbers within each social intervention were quite small. In future, there would be value in exploring a larger dataset for each social intervention to enable greater depth exploration of a larger range of contextual factors influencing project success. This type of exploration would require more detailed project information, perhaps gained through more in-depth case study analyses.

Although we applied realist synthesis across a broad range of interventions for comparison and commonality purposes rather than for detailed depth purposes, there is a richness in the data collected that could inform decision-making about project funding, planning and evaluation. The methodology developed for this project could be easily adapted to understanding factors associated with project success in other health and welfare areas.

References


**Author Note**

Barbara Hunter, PhD, has extensive expertise in community based research. She has used a range of methodologies to assess community needs and future risk across a
range of areas, and developing strategies to respond. Barbara's PhD explored understandings of illegality and healthy/unhealthy behaviors within the dance party culture, including drug use, drug dealing and driving under the influence of drugs. Using an ethnographic research approach, Barbara explored methods utilized by young people to balance the multiple arenas in which they interact, and the ways they make sense of notions of self and belonging within these arenas, with a specific focus on the leisure sphere of electronica. Barbara is a Senior Research Fellow at Turning Point Alcohol and Drug Centre, and holds an adjunct senior lecturer position at Monash University. Correspondence regarding this article can be addressed to Dr. Barbara Hunter at E-mail: barbarahunter@hunterfive.com and barbara.hunter@turningpoint.org.au

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