Evaluating complex community-based health promotion: Addressing the challenges

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**Evaluating complex community-based health promotion: addressing the challenges**

**Abstract**

Community-based health promotion is poorly theorised and lacks an agreed evidence-base. This paper examines characteristics of community-based health promotion and the challenges they present to evaluation. A review of health promotion evaluation leads to an exploration of more recent approaches, drawing on ideas from complexity theory and developmental evaluation. A reflexive analysis of three program evaluations previously undertaken as an evaluation consultant is used to develop a conceptual model to help in the design and conduct of health promotion evaluation. The model is further explored by applying it retrospectively to one evaluation.

Findings suggest that the context-contingent nature of health promotion programs; turbulence in the community context and players; multiple stakeholders, goals and strategies; and uncertainty of outcomes all contribute to the complexity of interventions. Bringing together insights from developmental evaluation and complexity theory can help to address some evaluation challenges. The proposed model emphasises recognising and responding to changing contexts and emerging outcomes, providing rapid feedback and facilitating reflexive practice. This will enable the evaluator to gain a better understanding of the influence of context and other implementation factors in a complex setting. Use of the model should contribute to building cumulative evidence and knowledge in order to identify the principles of health promotion effectiveness that may be transferable to new situations.

**Key words**

Health promotion; evaluation; complexity; settings
Introduction

Empirical research providing evidence of effectiveness for community-based health promotion (CBHP) is limited and there is a need to build the evidence base (Baum, 2003; de Leeuw & Skovgaard, 2005; Judge & Bauld, 2001). This would strengthen the case for investment in health promotion, increase credibility and develop a sound theoretical framework, and build a resource of knowledge (Baum, 2002). This paper examines the characteristics of CBHP programs and the challenges these present when searching for appropriate evaluation approaches. A brief history of health promotion and evaluation approaches sets the scene and leads to a discussion of opportunities for future development. The main purpose of the paper is to present a conceptual model, drawing on developmental evaluation and complexity theory, to help in the design and conduct of CBHP evaluation. The model is further explored by applying it retrospectively to a case study evaluation. The paper concludes with lessons learnt with regard to evaluation of complex community-based initiatives.

Health promotion

Health promotion is a contested term with practice ranging from individual health education and mass marketing of health promotion messages, to support for community action and advocacy for policy and system change. In the early 1980s it became apparent that health education alone was insufficient to bring about change in behaviour related to complex socially embedded lifestyles (Grembowski, 2001) and this was followed in 1986 by the Ottawa Charter for Health Promotion (World Health Organization, 1986) which identifies three central processes for health promotion: advocacy for health to create the essential conditions for health; enabling all people to achieve their full health potential; and mediating between the different interests in society in the pursuit of health. The WHO Glossary (World
Health Organization, 1998) strengthens the notion of health promotion as a social and political activity and notes the importance of addressing the social, environmental and economic determinants of health while also recognising the importance of personal skills and capabilities. It also confirms the importance of citizen participation in health and health care decision making.

Health promotion writers have described a set of principles to guide practice that reflect the values of the Ottawa Charter (see Box 1).

**Box 1 about here**

**Community-based health promotion**

Community-based health promotion comprises activities in communities that draw on the principles of the Ottawa Charter (Baum, 1998). The community settings approach acknowledges the physical, organisational and social context in which people live, work and play as legitimate objects for research (Poland, Frolich, & Cargo 2009). The healthy settings approach has developed substantially and includes Healthy Cities, health promoting hospitals, schools and workplaces. Green and colleagues (2000) argue that a settings approach is critical to health promotion theory because it provides a conceptual boundary and defines the people and location for activities. According to Boutilier and colleagues (2000) however, the settings approach goes beyond providing a location for intervention, but aims to ensure that the ethos and activities ‘are mutually supportive and combine synergistically’ to improve health and wellbeing.

While community settings for health promotion vary, some common principles have been identified by Dooris (2005). These include: an ecological model of health, determined by complex interactions between environment, organisation and personal factors, largely outside
the control of health services; salutogenic rather than pathogenic focus; settings understood as complex dynamic systems with each setting seen as part of a greater whole; focus on bringing about and managing change within a whole organisation or community (Dooris, 2005). This frames the setting as a complex environment where people and relationships interact dynamically with health promotion activities.

Community-based health promotion characteristics and evaluation

The characteristics of health promotion, as described above, challenge evaluation design and conduct. While alternative perspectives, such as those from a social view of health, have contributed much to health promotion, it continues to be closely linked to health and medical services with a very different understanding of health and illness. Health promotion struggles to distance itself from association with the medical model that focuses on individual responsibility to reduce exposure to risky behaviour and risky environments (Green and Tones, 2010). For example, the advent of evidence-based medicine has created a surge of interest in ‘outcome’ evaluation, and this has spilled over to health promotion (Wimbush & Watson, 2000).

Tones and Green (2004) point out that health promotion settings are culturally constructed, with pre-existing relationships and permeable boundaries. Settings are not discrete, fixed entities but exist as systems with a complex web of interactions (Tones & Green, 2004). Thus, CBHP initiatives are less amenable to evaluation because it is hard to set parameters and priorities when everything interacts (Green, et al., 2000) and boundaries are unclear (Dooris, 2005). Further, there is great diversity of approach and practice, and variations in settings (Dooris, 2005; South & Woodall, 2012), which implies that evaluation frameworks need to be flexible and diverse in response to this variation and also that transferability of findings is problematic. A summary of CBHP characteristics and their impact on evaluation
Research paradigms and CBHP evaluation

Evaluation theory and practice has tended to reflect the dominant research paradigm at the time. However, it is argued that health promotion principles should guide evaluation of health promotion initiatives (Poland, 1996; Tremblay et al., 2013). This section traces the development of evaluation approaches and their congruence with CBHP in order to identify strengths and gaps.

Postpositivism: measurement and judgement

Modern notions of evaluation began in the 1960s (Chen, 1990) and was firmly based in positivist thinking. Furler (1979) argues that the positivist approach cannot accommodate social programs like CBHP since these embody ideals, a theory of intervention and implementation of the theory. All these require the setting of value criteria and making value judgements. Also, a positivist approach ignores differing power relationships and the political nature of evaluation, and neglects to take account of context (Chen, 1990; Guba & Lincoln, 1989).

Evaluations under a postpositivist paradigm focus on experimental methods that use experimental and control groups to compare outcomes. Braveman and colleagues (2011) note that medicine seems to be unique in the primacy given to randomised controlled trials. This is problematic for CBHP where randomisation into experimental and control groups is unrealistic (Tones & Green, 2004). While there are some proponents of the use of community controlled trials (see, for example, Oakley, 1998, 2005), in general, setting up control communities and keeping them uncontaminated by the intervention is not practical and, since

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Table 1 about here

Research paradigms and CBHP evaluation

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implementation of the initiative is likely to be influenced by the community context and stakeholders, it is not possible to predict the exact nature of the intervention or the expected outcomes in advance (Baum, 2002). This means that the notion of the superiority of the randomised controlled trial and other experimental methods has been challenged and a mix of quantitative and qualitative methods to suit the specific evaluation question is proposed by many commentators (see, for example, Baum, 1995; Creswell & Plano Clark, 2007; Judge & Bauld, 2001; Nutbeam, 1999). However, the complexity of CBHP and the use of non-experimental methods mean that a linear model of causality cannot be established with any certainty. The long time frame required for achieving outcomes from many CBHP initiatives adds to the problems of causality and attribution of effect.

*Constructivism: dialectic and responsive*

Guba and Lincoln’s (1989) fourth generation evaluation employs a constructivist methodology that uses interaction between stakeholders (including the evaluator) to create constructed reality. The major value of this approach is in the implied empowerment of stakeholder groups, and recognition of the political nature of evaluation. Fourth generation evaluation has much to offer CBHP in terms of freeing the evaluation from the tyranny of a positivist paradigm that requires controlled experiments to demonstrate causal outcomes. As Abma (2005) notes, fourth generation evaluation is synergistic with health promotion in that it recognises active participants rather than passive research objects, it can accommodate multiple interacting factors and perspectives and moves from professional dominance to shared decision-making. The evaluation is designed as a continuous and emergent process which is appropriate for a developmental program that needs to be flexible to local needs and interests. However, issues of power differences remain largely unchallenged (Abma, 2005; Fishman, 1992; Pawson and Tilley, 1997) and there are problems with representation and participation of all stakeholders. Other issues centre on the more practical challenges.
Fishman (1992) notes that fourth generation evaluation is unwieldy and difficult to implement and that there is little detail to guide the evaluator. Also problematic is the implicit timeframe and resources required for CBHP evaluation, where funding is already scarce (Baum, 2003).

**Theory-based evaluation**

Program theory and program logic modelling in various guises have now been widely adopted in social science research and evaluation (Birkmayer & Weiss, 2000; Rogers, Petrosino, Huebner, & Hacsi, 2000; Rossi, Lipsey, & Freeman, 2004). Theory-based evaluation is said to bring to the surface the assumptions upon which the program is based. In this way theory testing becomes a way of unpacking the evaluation ‘black box’ and should explain how and why programs achieve or don’t achieve (Birkmayer & Weiss, 2000; Weiss, 1998), in contrast to just ‘do they work?’ Program theory facilitates generalisation, because if it is known how and why a program works (that is the mechanisms underlying the program effect), this helps to assess if it will do so in new situations (Mark, 2003).

Patton (1997) proposes a ‘user-focused approach’ where the evaluator’s task is to facilitate articulation of the operating theory by intended users. In health promotion, for example, provision of health education in order to change behaviour may be based on a theory that more information leads to behaviour change towards a healthier lifestyle. In reality, a host of other competing theories could contribute to explaining what changes behaviour. For CBHP evaluation, the theory-driven approach provides an opportunity for stakeholders with different understandings of a program to participate in reaching a consensus position and articulating shared goals. The process of building the program theory provides an opportunity to strengthen a program by identifying and considering the underlying assumptions, potential areas of breakdown and unintended outcomes. The development of a program theory is likely
to be useful since many health promotion programs are funded, planned and implemented without adequate attention to underlying theory (Birkmayer & Weiss, 2000; Judge & Bauld, 2001; Nutbeam, et al., 2010).

However, program logic models tend to be simplistic and linear (Poland, 1996; Rootman, Goodstadt, Potvin, & Springett, 1997) and the theory-driven approach leaves unresolved questions about the ability of program theory to explain the mechanisms and causal links to the outcomes. A useful overview of health promotion theories and models (Nutbeam, et al., 2010) suggests that theory is underdeveloped and that theories are supported by varying levels of evidence. In moving from individual behaviour change to organisational change and development of public policy there are increasing levels of complexity and decreasing levels of substantial theory. This, in turn, increases the complexity for evaluation. In addition, health promotion programs are rarely designed with evaluation in mind, they often lack clear documentation of planning and implementation and have vague goals (Judge and Bauld, 2001).

Realistic evaluation

In 1997, Pawson and Tilley published their landmark book ‘Realistic Evaluation’. The authors emphasise the importance of context and of asking not just what works but ‘what works for whom and under what circumstances’. It is the action of stakeholders that make a program work; its causal potential is to provide reasons and resources to enable participants to change. The evaluation question is then what conditions allow for this to occur and has it happened in practice?

The importance attached to understanding the program context complements health promotion and suggests a way to generalise learning across different interventions. However, CBHP initiatives are likely to be working with a complex mix of underpinning theories,
strategies and participating groups. While it is apparent that a program can be operating under a number of different or overlapping context-mechanism-outcome configurations at any one time (Pawson & Tilley, 1997), realistic evaluation does not make clear how these different configurations can be linked or networked in a dynamic holistic context. Each scenario appears to be independent in terms of the evaluation.

The issues described above point to a deficit in current evaluation theory and practice that can do justice to community-based health promotion. The risk in continuing to use inappropriate evaluation approaches is that evidence of effectiveness from high cost health promotion trials will continue to be weak (Hawe, Shiell, & Riley, 2004; Ling, 2012) and this will contribute to the marginalisation of the health promotion sector by funders and policy makers. The next section discusses more recent developments.

**Complexity theory and developmental evaluation**

To identify complexity theory literature as it pertains to health promotion, the terms ‘complexity’ ‘evaluation’ and ‘health promotion’ were used to search databases Medline, PubMed, CINAHL and Google Scholar for works from 2000 to 2012. This was supplemented by citations from the works identified, recommendations from colleagues and publisher and library alerts.

While definitions and understandings of complexity are diverse, in general, complex systems are considered to be uncertain and emergent (Rogers, 2008). Complex interventions feature many interacting components, multiple actors, discretionary behaviours by stakeholders and changing social contexts and environments (Dubois, Lloyd et al., 2012; Hawe, Shiell & Riley, 2009). These characteristics are explored further below.
Complex characteristics of CBHP

CBHP initiatives are generally set in dynamic, complex systems with each setting functioning as an open system in exchange with the wider environment and other settings (Dooris, 2005). Healthy settings approaches tend to have long-term goals, multiple actions and expected outcomes at multiple levels and are active in local contexts that differ from city to city (Baum, 2003). Further, many of the social processes underpinning action, such as empowerment and community participation, are poorly theorised or are contested in meaning (Baum, 2003). The complexity of health promotion is illustrated by the interconnectedness of issues that impact on health and wellbeing (Norman, 2009). Thus, a state of health or ill health is rarely dependent on a single cause, but rather, on an interplay of biological, behavioural, social and environmental factors. A holistic approach to evaluation is required that monitors all changes in order to capture unanticipated outcomes, rather than focussing solely on looking for predicted change. Complexity theory presents an opportunity to adopt a dynamic ecological approach to research and evaluation in community based interventions (Hawe, Shiell, et al., 2009).

Plsek and Greenhalgh (2001) present a framework for thinking about simple, complex and chaotic knowledge approaches according to the level of certainty about what the problem is and the level of agreement on what to do about it. A useful example of simple, complicated and complex activities is given by Westley and colleagues (Westley, Zimmerman, & Patton, 2006). Their description of complex problems resonates with much community-based health promotion: implementation is not standardised, successful outcomes do not necessarily translate to a new setting, responsiveness to the community and the setting is needed as each is different, there is uncertainty of outcomes and a holistic approach is required that goes beyond discrete program components.
Complex interventions are characterised by feedback loops, adaptations and multiple components (Ling, 2012) that may act independently or interdependently (Campbell et al., 2007). They have emergent objectives in response to changing needs, opportunities and challenges and their governance involves an emerging cast of partners and relationships. Using these characteristics it is clear that many CBHP initiatives are complex since their development is responsive and adaptive in relation to stakeholder and environmental factors changing over time. Indeed, health promotion has been described as ‘systems thinking in action’ (Norman, 2009 p.869) and Norman argues that, as the field of health promotion has developed, a more complex picture of health and health promotion has emerged. Tremblay and Richard (2011) see a convergence of ideas in complexity theory and health promotion as the complexity of social structures and change is being recognised. The synergies between complexity theory and health promotion include a concern for an integrated holistic approach and the need for a comprehensive, dynamic, non-linear understanding of issues such as legitimising lay knowledge and participation (Tremblay & Richard, 2011). These complexity factors mean that static, linear approaches to evaluation will miss much of the adaptive nature of the intervention and may focus on issues that are no longer relevant to many stakeholders.

**Using complexity theory in evaluation**

Complexity theory challenges the notion that linear cause and effect relationships can always be found. Kurtz and Snowden (2003) question the assumption that human decision making and policy making is based on order, rational choice and intentionality. This is pertinent to evaluation of CBHP where human behaviour sets the context and a linear relationship between cause and effect, rational choice and intentionality cannot be assumed. A health promotion ‘complex intervention’ has interacting components similar to those described by complexity theory: discretionary behaviour or actions; multiple levels of individuals and groups; and the need to be flexible (Hawe, Shiell, et al., 2009). Most significant is the setting
context, interaction between setting and intervention, and relationships (Hawe, Shiell, et al., 2009; Matheson, Dew, & Cumming, 2009). Thus, a systems approach starts with context, and the intervention is a way to create new roles and increase interaction between players.

Westhorp (2012) suggests that complexity theory adds value to realist evaluation by making clear what factors to look for in the initial context and what factors act as controlling parameters in tackling resistance to change. This is similar to Signal and colleagues’ (2012) argument that complexity can help identify the best points for intervention within self-organising, stable systems. Some issues in the use of complexity ideas have been identified (Signal, et al. 2012). Firstly, in practical terms, there is a limit to the scope of what can be monitored, engagement of community members is likely to be restricted and a comprehensive understanding of the local system and context is needed. Secondly, multiple findings may be difficult for policy makers and governments to interpret and so priorities may need to be negotiated.

**Developmental evaluation**

Patton (2011) draws on complexity theory to detail ‘developmental evaluation’ an approach that appears to show great promise for CBHP evaluation as it supports evaluation of programs that change in response to community input and provides a means of transferring findings to new contexts. Two of Patton’s purposes for development evaluation are particularly pertinent to health promotion. Firstly, when a program is adapting in a complex situation, developmental evaluation can be used to identify principles to inform that ongoing development. Secondly, developmental evaluation can assist in adapting the general principles of a program to a new context. So, rather than adopting best practice without regard for local context, validated principles are adapted. Hawe, Shiell and Riley (2009) describe a similar notion of ‘fidelity to theory’ rather than fidelity to implementation.
In Patton’s model, local knowledge from innovation, adaptation and emergence arises from the microsystem of the local context. These ideas and practices may be expanded and taken up elsewhere. Best practice and principles of effectiveness arise from dissemination of models, evaluation and evidence, and intersect with global or national macro systems. The middle ground is the space where top down and bottom up mix through developmental evaluation that generates large scale principles of effectiveness and, at the same time, nurtures local adaptation. Developmental evaluation also aims to provide rapid feedback as the program evolves, and opportunities for exploration of ideas and reflection (Westley, et al., 2006). However, challenges are described by Rey and colleagues (2013) in their analysis of two case studies using DE. Firstly, they found a distinction between research objectives seeking to generate transferable knowledge and the more action-orientated evaluation objectives. Secondly, there was some conflict in the evaluator’s role as both researcher and consultant. The third challenge was in working to different time frames for reflection and theoretical analysis in contrast to the need for rapid feedback to stakeholders.

In summary, while there is little agreement about a definitive complexity theory (Nunn, 2007; Patton, 2011) there is consensus on a number of elements that go to make up complex systems. A complex system is: non-linear; emergent/self-organising; adaptive; unpredictable/uncertain; dynamic; co-evolutionary/dependent on history (Nunn, 2007; Patton, 2011; Shiell, et al., 2008). Table 2 summarises complexity elements and the implications for health promotion evaluation.

Table 2 about here
Methods

The review of health promotion and evaluation presented above guided a reflexive analysis of three program evaluations previously undertaken in my role as an evaluation consultant (see Table 3 for summaries). I examined the evaluation context at the time and how this influenced the approach and methods used, and identified gaps or unresolved issues that arose. Following this reflection, I drew on the relatively new ideas of developmental evaluation and complexity theory to construct a conceptual model that could assist health promotion evaluators to recognise and deal with complexity. I then applied the model retrospectivity to one of the program evaluations in order to illustrate key lessons.

Table 3 about here

Reflections

Reflections on my program evaluations reveal theoretical/methodological issues and practical/resource issues. Theoretical underpinnings were generally weak and my role included negotiating with stakeholders to draw out the implicit theories and program logic. Interpretive methods were used which limited the claims that could be made about attribution and causation. While theory-based evaluation calls for input from all stakeholders this is not always easy, for example, practitioners’ priorities are centred on service delivery. Working in a consultant role means that time and resources are constrained and responsiveness to changing context may need to be negotiated with funders and program managers.

I have taken the standpoint that empowerment of individuals and communities is an underpinning principle of health promotion theory and practice. This means that evaluation of health promotion programs should also be empowering for the program recipients and other
stakeholders. A number of implications from this are apparent: the health promotion program and its evaluation design need to be flexible in order to allow for, and respond to, stakeholder input; the evaluator needs to take on a negotiator or mediator role in order to bring different interests to a workable consensus and stakeholders need the skills, resources and interest to be engaged meaningfully in the evaluation. Evaluation should be part of the planning and implementation cycle, provide rapid feedback and monitor the changing context and emerging outcomes from the initiative. The model presented below reflects these ideas.

**A conceptual model for CBHP evaluation**

This paper has argued that mainstream evaluation practice does not sit well with community-based approaches and health promotion principles and values. Drawing on complexity and developmental evaluation concepts, I combine these with lessons from my evaluation work to construct a conceptual model for CBHP evaluation (Figure 1). The model is designed to address some of the issues for evaluation identified earlier. These issues often include a lack of well-developed program theory, the linear and static nature of logic models, a somewhat simplistic and reductionist description of the intervention, problems with participation, and the context-contingent nature of implementation. Unintended and unanticipated outcomes can also be missed. The model therefore builds on theory-based evaluation by including program theory and program logic models but recognising that these should be subject to revision in the face of findings from evaluation of implementation process and outcomes. Participatory approaches and frequent feedback to support program development form part of the model. Developmental evaluation is drawn upon to help deal with complexity characteristics by acknowledging expert and lay input to the program theory and logic models, and by recognising the adaptive, dynamic and emergent nature of the initiative. Thus, the model more closely integrates program theory and complexity theory and illustrates a way for the
theory and logic to be revised in response to evaluation findings. It also applies a specific health promotion lens.

The model illustrates the three phases of planning, implementation and evaluation. Health promotion principles and values feed into all these phases. The layout of the model is not intended to suggest that planning, implementation and evaluation are linear. In a complex system these interact and arrows illustrate the two-way flow of information between each phase. The model proposes that the evaluator, or evaluation team, should be engaged at all phases rather than being brought in when the initiative is well-established or towards the end of its life.

**Figure 1 about here**

The planning phase starts with input from two ‘buckets’ of information. The evidence bucket contains evidence from academic literature, accepted best practice and findings from other research and evaluation. The knowledge bucket content is mainly practitioner and lay wisdom about what has worked before or might be expected to work in this context. These two sources of information are then used to produce a macro program theory and logic model, including predicted outcomes, to provide overall guidance to program development. Program planners, funders, managers and evaluators should, ideally, work collaboratively to produce the program theory. The program theory at this stage is an overarching model of how the program is expected to work, and what outcomes are likely to be achieved, based on previous evidence and knowledge. The program theory then needs to be adapted to the local situation (Rey, et al. 2012) and this requires two filters: context and resources. Consideration of the local context and community involves, for example, identification of the population group for the program, the geographical area, the needs and strengths of the community,
experience with previous initiatives, local stakeholders and decision makers, and social, economic and political factors. The resource filter provides a ‘reality check’ in terms of what implementation and outcomes are plausible given the financial and human resources for the program, but also identifies the priority activities and evaluation questions. The capacity, skills and resources of practitioners and community members are also important factors. Applying these filters leads to the development of a more locally specific, micro program theory or possibly a series of theories. A localised program logic model(s) would identify the links between program components and expected outcomes taking into account the available resources and the enablers and constraints in the local environment or setting. Ideally, in addition to the group developing the macro program theory, a broader range of stakeholders would be involved in developing specific theories, including the practitioners who will be delivering the program, community representatives or leaders, and people from the agencies and groups who will be partners to the initiative. This recognises that different stakeholders, including the evaluator, will have different interpretations of a complex intervention (Dubois, Lloyd et al., 2012). Thus, in the planning phase, formal evidence and the lay wisdom of stakeholders are brought together, as described by Patton (2011) in developmental evaluation. A strength of the model is that it then combines these to make the program theory explicit and to draw out the program logic model in a collaborative exercise. Further, the model allows for recognition of the impact of local contextual factors (the micro) and likely resource constraints. The result of this filtering process is that a context-specific and realistic program logic model can feed into the implementation stage.

Program activity takes place in a permeable ‘implementation space’. The model illustrates that the implementation of complex interventions does not normally follow a linear path. Implementation and adaptation flow in a cyclical manner and this is influenced by internal and external factors, history, networks, relationships and feedback loops as suggested by
complexity theory. The program theory and components of the logic model are continuously adapted to take these emergent issues into account and, in this way, the critique of program logic models as too static and linear is addressed. The evaluator’s role during this stage is to monitor the internal and external influences and provide rapid feedback to stakeholders so that the initiative can be adapted in response to emergent issues. This process draws on developmental evaluation in that it encourages the evaluator to engage with the implementation in order to provide timely feedback and support the program as it develops.

Evaluation flows from, and interacts with, the implementation space. Evaluation is underpinned by health promotion principles of participation and empowerment so that as far as possible, it is participatory and adaptive, provides rapid feedback to stakeholders and aims to capture all perspectives. Reflexive evaluators therefore need to ask themselves how, and to what extent, the evaluation process: encourages and supports participation by stakeholders; captures all perspectives; adapts to changing system dynamics; monitors interactions; and provides rapid feedback. These reflexive questions are answered, or least uncertainty about them is reduced, by documenting, analysing and interpreting: actions, decisions, adaptations; initial conditions and changes in internal and external environments; changes in networks, relationships, interactions and why these occur; unanticipated events; conflict, disagreement and uncertainties. Findings from the evaluation are context-specific in that they relate to the micro program theory as it is adapted during implementation. However, by examining findings against both the macro and micro program theories, overarching ‘principles of effectiveness’ (Patton, 2011) may be identified. According to Patton, effectiveness principles provide guidance, rather than prescription, on what works elsewhere that can then be adapted to a new setting. Thus, established or emerging evidence of good practice may be supported or countered. The ability to identify principles of effectiveness may increase as findings from similar programs are built up through repeated application of the model.
Applying the Planning, Implementation and Evaluation Model to

Healthy Ageing – Nutrition

Healthy Ageing – Nutrition was an action research project aiming to improve nutrition capacity in the aged care workforce and community-based organisations providing aged care services. This project was chosen for reflection as it is the most recent and the author acted as sole evaluation consultant. Over two years the project worked with ten organisations to develop action plans, provide resources and other assistance and bring the participants together for shared learning. Although the stated target was workforce, this was defined very broadly to include volunteers and carers. Each organisation’s action plan was developed individually but based on a proforma developed by the project manager. The evaluation was consultative throughout, working closely with the project manager and project advisory group. A qualitative case study approach was used to evaluate the participating organisations’ progress in achieving their action plans (Jolley 2008).

The project had a number of complex components including: interactive relationships, uncertainty about defining the workforce, organisational cultures, diversity and ongoing changes in organisations, power differences within and between organisations, changing political and economic contexts. Figure 2 provides a practical example of how the planning, implementation and evaluation model might be used, drawing on the evaluation of Healthy Ageing – Nutrition

Figure 2 about here

While some of the activities were undertaken, applying the Planning, Implementation and Evaluation model suggests that more focus on the following changes to practice would have been beneficial.
In the planning phase:

Identifying the complex components of the project would have enabled planning for the evaluation of these to be more effective. It would have alerted the Evaluation Group to the uncertainties in how the program might unfold and acted as a prompt to look for where complexity issues might have an impact on implementation.

While there was some documentation of existing evidence and good practice in enabling organisational change in the healthy ageing community-based services context, this could have been strengthened. This would have allowed existing evidence to play a larger role in the planning and implementation of the program and provided a framework for development of a program theory and program logic model to guide the evaluation. Documenting the practice knowledge of the project manager and key stakeholders about stimulating and supporting organisational change in the healthy ageing community-based services context would also have added to the understanding of the program’s underlying theory.

Applying the model would have led to combining evidence and practice knowledge to develop a program theory and program logic model for the Healthy Ageing – Nutrition intervention. The implication from complexity theory is that the macro program logic model needs to be adapted for the diverse organisations engaged in the program. Thus, the macro program logic model would be filtered through the local context for each participating organisation and the resources available to it. For example, organisations came to the program with varying levels of financial and human resources and capacity for change. The willingness and capacity of stakeholders to draw on evidence and practice to develop program logic models also varied.

These changes in the planning phase all require the evaluator to have input at the early planning stages of the program and this is likely to increase the level of evaluation resources
required. It also needs the funder or program auspice to be supportive and cognisant of the need for evaluation input at this early stage of planning.

In the implementation phase:

Suggested changes in the implementation phase would include more systematic monitoring and assessment of factors influencing implementation in order to gain an understanding of how these factors shape the context, and how this changing context reacts with the program and its theory. Complexity theory highlights the need to document emergent interactions, feedback loops, adaptations of the planned program and activities rather than focussing solely on processes and impacts expected from the original program logic model. In practice, resource constraints on the Healthy Ageing – Nutrition evaluation limited capacity to undertake a more comprehensive analysis of the adaptations and emerging issues during the implementation phase. For example, it became apparent that different approaches to stimulating change were required when dealing with a volunteer workforce compared to a professional grouping. One participating organisation was undergoing large structural change and this had implications for the way the program was implemented in this case.

To enhance participatory, developmental evaluation, the model suggests the need to provide frequent feedback to stakeholders, particularly participating organisations. This engagement with participating organisations requires a high degree of program ownership and investment by participants and capacity for this in the participating organisations varied. In retrospect, the evaluation could have provided more detailed and rapid feedback to the stakeholders.

Changes suggested during the implementation phase require evaluation resources to be used to monitor and assess systematically the environmental changes that potentially have an impact on implementation. Participants and stakeholders would also need an interest and understanding of evaluation and the capacity to engage in this aspect of the project.
In the evaluation phase:

Changes in this phase would mean that the evaluator analyses the influence of the internal and external environment on implementation and subsequent impacts from the project. Emerging issues and early findings would be continuously negotiated with stakeholders in order to provide proactive and timely feedback.

In the model, environmental analysis is a critical component of the evaluation and should assist the program to remain relevant in a changing context. This analysis would then be drawn upon to adapt the evaluation process to the unfolding and emergent program. This should enhance the usefulness of the evaluation as it reflects the actual events rather than only what was predicted. For example, in the Healthy Ageing – Nutrition project of collaborative links between participating organisations were made that had not been anticipated but were likely to continue after the life of the project.

The model suggests that, as far as possible, the evaluation should aim to engage all stakeholders so as to gain a broad perspective and give voice to those who may not otherwise be heard. The Healthy Ageing – Nutrition evaluation involved leaders of the participating organisations and some other stakeholders but no input was sought directly from the workforce or clients. This was outside the scope of the evaluation but would have added to the comprehensiveness of the evaluation findings.

Developmental evaluation and complexity theory suggest that it is important to ask reflexive questions as a way to assess the quality of the evaluation and the evaluator’s own professional development. Considering the reflexive questions would have served as a prompt to examine the overall quality and effectiveness of the Healthy Ageing – Nutrition evaluation process. For example, was participation by all stakeholders (including participating organisations) supported? Were all perspectives captured? (only organisation
leaders were interviewed, not the wider workforce or clients). Was evaluation adapted to changing system dynamics? Were interactions and power differences monitored? Was rapid feedback provided?

Finally, the model suggests identifying principles of effectiveness that may be transferable to other contexts. These principles can inform future evaluations of similar programs by feeding into their program theories. While analysis of the evaluation data for *Healthy Ageing – Nutrition* did lead to a model of enhancers and barriers to making changes in the participating organisations, this would have been strengthened, and transferability increased, by going back to refine the original program logic model in light of the evaluation findings. However, opportunity for this is constrained in time-limited projects such as *Healthy Ageing – Nutrition*.

**Conclusions**

CBHP presents many challenges for evaluators. Program theory and logic models can help to articulate the theoretical underpinnings of a program and how it is expected to work. However, these approaches risk imposing linearity and certainty on programs that are occurring adaptively in a dynamic setting. This paper has presented a model combining complexity theory and DE as a new approach for the evaluation of CBHP. Complexity theory resonates with many of the issues raised in evaluation of health promotion: dynamic interactions and changing contexts driving uncertainty about processes and outcomes. Recognition of the complexity of an intervention and its setting leads to approaches such as developmental evaluation which emphasise the need for evaluation to be responsive to the program and its changing context and to work in partnership with program stakeholders.

The proposed planning, implementation and evaluation model builds on developmental
evaluation by more closely integrating program theory and complexity theory and by applying a specific health promotion lens. In this way the evaluation may increase understanding of the unique actors, power differences, conflict and environmental context of the health promotion initiative and so unravel some of the apparent complexities. A retrospective application of the model to an evaluation suggests it provides a useful framework for designing an evaluation.

In terms of the issue of transferability of findings, a further question might be asked: to what extent can the learning from evaluation of this initiative be applied in other situations? This means trying to identify the principles and assumptions underlying the program theory that contribute to effectiveness and that might be applicable in a different context. These principles for effectiveness could then be added to the evidence bucket if sufficiently robust, or to the knowledge bucket if not yet formally established, when planning for another initiative. In this way, cumulative learning could be used to build up knowledge about what works across a range of contexts. The model, then, aims to contribute to reducing complexity and to the prediction of effective practice principles that might be applicable in a different setting or context.

**Lessons learnt**

The reflexive process that has led to the development of the model in this paper suggests three main lessons. Firstly, CBHP, like *Healthy Ageing – Nutrition*, is often time and resource-limited so rapid feedback from evaluation is useful during implementation. Levels of resourcing that enable the evaluation to extend beyond assessment of short-term, localised change to higher order system change over time would increase knowledge of effectiveness. Secondly, a participatory evaluation approach reflects health promotion values but the capacity of organisations and practitioners to engage in evaluation is limited. Meaningful
engagement with stakeholders throughout the evaluation needs to be a key priority. Finally, the evaluator should be prepared for uncertainty, emergent and unexpected outcomes, and dynamic interactions with the environment and between stakeholders. Taking a complexity approach requires flexibility in planning and budgeting for evaluation. Thus, a role for evaluators is to educate evaluation commissioners about the need to accept more flexibility in contract agreements.
References


Author et al. (2000)


Author et al. (2004)


Figure 1 Planning, Implementation and Evaluation conceptual model
**Figure 2 Application of Planning, Implementation and Evaluation model to Healthy Ageing – Nutrition**
<table>
<thead>
<tr>
<th>CBHP characteristics</th>
<th>Evaluation implications</th>
</tr>
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<tbody>
<tr>
<td>Settings context</td>
<td>Context of initiative is critical to implementation and varies between settings,</td>
</tr>
<tr>
<td></td>
<td>thus transferability of findings is limited</td>
</tr>
<tr>
<td>Setting is permeable</td>
<td>Context and stakeholders are subject to change</td>
</tr>
<tr>
<td>People-centred and built on</td>
<td>Initiative is a function of relationships and</td>
</tr>
<tr>
<td>interactive relationships</td>
<td>interactions between people. These are</td>
</tr>
<tr>
<td></td>
<td>unpredictable and need to be documented</td>
</tr>
<tr>
<td>Participatory and empowering</td>
<td>Initiative develops in response to stakeholder</td>
</tr>
<tr>
<td></td>
<td>participation. Evaluation is political and</td>
</tr>
<tr>
<td></td>
<td>subject to power differences among stakeholders</td>
</tr>
<tr>
<td>Cross-sector engagement</td>
<td>Sectors may bring different values and goals</td>
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<tr>
<td></td>
<td>to the evaluation</td>
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<tr>
<td>Holistic and positive view of health</td>
<td>Broad range of positive health indicators</td>
</tr>
<tr>
<td></td>
<td>needed to assess outcomes</td>
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<tr>
<td>Focus on equity</td>
<td>Equity of access and outcomes should be</td>
</tr>
<tr>
<td></td>
<td>assessed as part of the evaluation</td>
</tr>
<tr>
<td>Complexity characteristic</td>
<td>Health promotion complexity</td>
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<tr>
<td>---------------------------</td>
<td>-----------------------------</td>
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<tr>
<td>Non-linearity:</td>
<td>Initiatives act in the community. Initial and changing context effects how initiative takes place and how it influences participants.</td>
</tr>
<tr>
<td>Emergence:</td>
<td>Interactions between stakeholders and sub-systems of the initiative lead to new ways of implementation. Population sub-groups may experience and respond to the initiative in different ways. Outcomes will not always be apparent at start of initiative and may change developmentally.</td>
</tr>
</tbody>
</table>

Table 2 Complex health promotion initiatives and evaluation (adapted from Patton, 2011 p150-151)
<table>
<thead>
<tr>
<th>Adaptive:</th>
<th>Uncertainty and unpredictability in how the initiative will take place means initiatives adapt to stakeholders’ experiences and changes in the context.</th>
<th>Capture perspectives from different stakeholders, feedback evaluative information to all groups. Evaluation design should be adaptive.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interacting elements and agents respond and adapt to each other and to environments. What emerges is a function of ongoing adaptation.</td>
<td>Community participation and changing contexts mean that planned processes and planned-for outcomes will very likely be subject to revision.</td>
<td>Identify sources of uncertainty, disagreements and turbulence. Resist forcing order and control, imposing linear logic models and predetermined outcomes. Anticipate unexpected events and provide rapid feedback.</td>
</tr>
<tr>
<td>Uncertainty:</td>
<td>Dynamic:</td>
<td>Track how and why changes in interactions between stakeholders and sub-systems occur. The evaluation should be prepared to capture volatile and turbulent change.</td>
</tr>
<tr>
<td>Processes and outcomes are unpredictable, uncontrollable, and largely unknowable in advance.</td>
<td>Interactions within and between parts of systems can be volatile, changing rapidly and unpredictable due to interdependence of key factors and variables.</td>
<td>Health promotion initiatives may be subject to changes in key personnel, political focus, new policy and intra and intersectoral events.</td>
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<tr>
<td>Co-evolutionary:</td>
<td>Sustainable health promotion initiatives arise from ongoing connections and system development such as policy change, legislation and increased community capacity for action.</td>
<td>Evaluation not independent but co-created with the initiative, through feedback and facilitation. Process evaluation affects initiative development. Include in evaluation design, participatory and consultative process about how initiative will be rolled out.</td>
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<tr>
<td>As interacting and adaptive agents self-organise, ongoing connections emerge and agents co-evolve as parts of the system over time.</td>
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</table>
### Table 3 Summary of program evaluations

<table>
<thead>
<tr>
<th>Reference</th>
<th>Program</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Eat Well SA project: an evaluation-based case study in building capacity for promoting healthy eating, Smith, et al. (2004)</td>
<td>Project aimed to increase consumption of healthy food in the SA population. Used a capacity building approach to develop intersectoral partnerships</td>
<td>Process, impact, generative. Described the project, disseminated methods and outcomes and presented a model for planning and evaluating capacity building health promotion</td>
</tr>
<tr>
<td>What makes for sustainable Healthy Cities initiatives? – a review of the evidence from Noarlunga after 18 years, Baum, et al. (2006)</td>
<td>Healthy Cities Noarlunga was established as a pilot Healthy Cities project in 1987 with funding from Australian Government. Now continues as a non-government organisation under the name Healthy Cities Onkaparinga</td>
<td>Document analysis. Identified factors that have contributed to sustainability of Healthy Cities Noarlunga despite political, structural and organisational change</td>
</tr>
<tr>
<td>Evaluation of an action research project in workforce development and organisational change; Healthy Ageing Nutrition, Jolley, 2008</td>
<td>Action research project aiming to improve nutrition capacity in the aged care workforce and community based organisations providing aged care services. Ten organisations took part, developing their own action plans</td>
<td>Action research case studies. Assessed the strength of the action research process and progress towards common objectives</td>
</tr>
</tbody>
</table>