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Healthy Settings
Building Evidence for the Effectiveness of Whole System Health Promotion – Challenges and Future Directions

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In this chapter, we focus on the settings approach to health promotion. We start with a brief review of its origins and development in relation to international policy; provide an overview of theory and concepts relevant to current practice; focus on the challenges faced in building evidence of effectiveness for the approach; and conclude by discussing several recent theoretical and methodological innovations that we believe offer potential ways forward.

While touching on the current state of the evidence base, the main purpose of the chapter is not to summarize past research but to illuminate clear theoretical underpinnings for the settings approach; examine the challenges to evaluating and demonstrating effectiveness and efficiency of such an ecological, whole system approach; and highlight implications and directions for future research.

The Settings Approach: Origins, Development, and Policy Context

The settings approach to health promotion has developed during the past 20 years. Green, Poland, & Rootman (2000) note that health education and health promotion have a long history of being organized around settings such as healthcare, workplaces, and schools – which provide "major social structures that provide channels and mechanisms of influence for reaching defined populations" (Mullen, Evans, Forster, Gottlieb, Kreuter, Moon, O'Rourke, & Stretcher, 1995, p.330). In this way, settings, alongside population groups and health topics, make up the traditional three-dimensional matrix used to organize programmes aimed at individual behaviour change (Dooris, 2004).

However, we would contend that "the settings approach"[*] represents an important development beyond this focus on carrying out interventions *within* a setting,

[*] A range of terminology has been used in relation to settings, as discussed by Whitelaw, Baxendale, Bryce, Machardy, Young, & Witney (2001) and Tones & Green (2004). This includes "settings for health", "the settings approach", "the settings-based approach",

recognising that place and context are themselves important and modifiable determinants of health and wellbeing, both directly and indirectly. Understood thus, the approach is acknowledged to have its roots in the *Ottawa Charter*, which highlighted "supportive environments for health" (a focus further developed in the *Sundsvall Statement* [WHO, 1991]) and stated that "health is created and lived by people within the settings of their everyday life; where they learn, work, play and love (WHO, 1986, p.2).

The Ottawa Charter stimulated WHO to prioritize the settings approach in its health promotion programmes, thereby "shifting the focus from the deficit model of disease to the health potentials inherent in the social and institutional settings of everyday life" and pioneering strategies that "strengthened both sense of place and sense of self" (Kickbusch, 1996, p.5).

Under WHO's leadership, the settings approach developed rapidly. Building on the 1984 Toronto "Beyond Health Care" meeting, Healthy Cities was launched in 1987 as a small European project (Ashton, 1988), quickly expanding to become a global movement for the "new" public health (Tsouros, 1991). In the European Region, developments subsequently took place within smaller settings such as schools, prisons, hospitals and universities (Barnekow Rasmussen & Rivett, 2000; Groene & Garcia-Barbero, 2005; Squires & Strobl, 1996; Tsouros, Dowding, Thompson, & Dooris, 1998). In the Region of the Americas, Canada initiated a Healthy Communities movement in 1986 (O'Neill, 2000; Wharf Higgins, 1992), both the United States and Canada developed comprehensive school health models in 1987 and 1988 respectively, and PAHO supported the development of the Healthy Municipalities and Communities movement in Latin America (Restrepo, Llanos, Contrera, Rocabado, Gross, Suárez, & González, 1996). The South-East Asia Region advocated a Healthy District programme as an umbrella for smaller settings projects (WHO, 2002a) and the Western Pacific Region supported Healthy Islands and Healthy Marketplaces initiatives (Galea, Powis, & Tamplin, 2000; WHO, 2004). And in Africa, Healthy Cities programmes have incorporated the settings approach, emphasizing the importance of action within and across a range of settings (WHO, 2002b), with a particular focus on creating healthy settings and environments for children – an emphasis echoed in the Eastern Mediterranean and other regions involved in the Healthy Environments for Children Alliance (WHO, 2006a).

The approach was strengthened by a number of further publications – most notably the *Jakarta Declaration* (WHO, 1997a), which suggested that settings "represent the organisational base of the infrastructure required for health promotion" (p.4) and "offer practical opportunities for the implementation of comprehensive strategies" (p.2). Whilst focusing strongly on "macro" issues as determinants of health in a

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"health promoting settings" and "healthy settings". Whilst it is possible to identify semantic differences between terms such as "health promoting settings" and "healthy settings" – the former more clearly suggesting a focus on people and a commitment to ensuring that the setting takes account of its external health impacts (Dooris, 2006b) – they have increasingly been used interchangeably, with a dual focus on both context and methods.

globalized world, the *Bangkok Charter* (WHO, 2005) follows on from Ottawa, Sundsvall and Jakarta in further highlighting the role of settings.

Healthy Settings: Theory and Practice

The Rationale for the Settings Approach: The Importance of Context

A "setting for health" has been defined as: "The place or social context in which people engage in daily activities in which environmental, organisational and personal factors interact to affect health and wellbeing . . .where people actively use and shape the environment and thus create or solve problems relating to health . . .normally . . . having physical boundaries, a range of people with defined roles, and an organisational structure" (WHO, 1998a, p.19).

Thus, a settings approach not only recognises that contexts influence both health and the achievement of the core goals of a setting, but also contends that health improvement requires investment in the social systems in which people spend their daily lives (see Figure 19.1). Health is, then, both a critical asset for and an outcome of the effective functioning of settings (Dooris, Dowding, Thompson, & Wynne, 1998; Grossman & Scala, 1993). This system-level investment is mirrored in parallel developments: for example, educators have developed "effective schools" strategies, business has adopted Total Quality Management programs, and many sectors have used the "the learning organization" concept (Senge, 1990).

The value of such investment has been acknowledged not only internationally (e.g. through the inclusion of a specific target on settings within the European Health for All Policy Framework [WHO, 1998b]), but also at national level. For example, the Northern Ireland public health strategy states that "many risk factors are interrelated

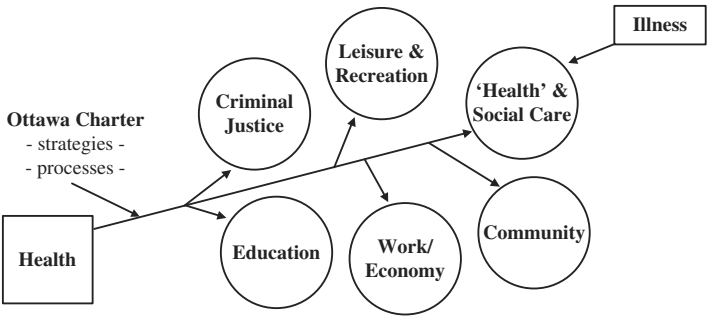

Figure 19.1. Putting 'health' into settings

Source: Dooris (2004) produced with permission from Critical Public Health http://www.tandf.co.uk/journals (adapted from Grossman & Scala, 1993, with permission from WHO)

and can be best tackled through comprehensive, integrated programmes in appropriate settings where people live, work and interact" (Department of Health, Social Services, & Public Safety, 2002, p.134).

Contemporary health promotion programs consist of complex *social* interventions slotting intentional change efforts into pre-existing contexts. Yet, "whilst programs are initiated in prisons, hospitals, schools, neighbourhoods, and car parks, it is the prior set of social rules, norms, values and interrelationships gathered in these places which sets limits on the efficacy of program mechanisms" (Pawson & Tilley, 1997, p.70). Context, is therefore fundamental to health promotion.

Although context receives attention in health promotion texts (e.g. Bartholemew, Parcel, Kok, & Gottlieb, 2006; Green & Kreuter, 2005), it is typically neglected during planning, implementation, and evaluation. Indeed, the dominant post-positivist paradigm sees context as a source of potential confounders to be "factored in" (as variables that apply across cases) or "factored out" (controlled for statistically or through study design such as randomization). While some authors (e.g. Kahan & Goodstadt, 2001) emphasize the importance of context to understanding and applying "best practices" in health promotion, the overwhelming tendency is to see context as a nuisance to be overcome.

In summary, although the inherent "messiness", unpredictability and uniqueness of context is anathema to an administrative (if not scientific) rationality intent on procedural standardization (Malpas, 2003), the settings approach asserts the importance of physical and social contexts to programme design, implementation, and evaluation.

Conceptualizing Settings

The theory and practice of the settings approach have been discussed by several authors (e. g. Baríc, 1993; Dooris, 2004; Dooris et al, 1998; Green et al, 2000; Kickbusch, 1995; 2003; Paton, Sengupta, & Hassan, 2005; Poland, Green, & Rootman, 2000; St Leger, 1997; Wenzel, 1997; Whitelaw et al, 2001) and are illustrated in Boxes 19.1, 19.2 and 19.3 with reference to schools, cities and virtual settings. Following Jewkes & Murcott (1998), who suggest that "community" is a professional construct offering legitimacy and making possible a certain kind of modus operandi, it can be argued that "setting" is similarly a construct developed to make a particular way of working in health promotion possible. Certainly, proponents of the "settings approach" have refined the concept in order to highlight new ways of thinking about and doing health promotion, and articulate the setting as an object of intervention. Adherents of a critical social science perspective (Eakin, Robertson, Poland, Coburn, & Edwards, 1996) might add that the construction of the concept is far from arbitrary and likely to be aligned with dominant power structures.

Whilst recognising that there can indeed be "tyranny . . . in the assertion or creation of consensus" (Green et al, 2000, p.26), it remains that increased clarity of conceptualization can strengthen future practice, policy, research and evaluation. To this end, we would suggest that the settings approach is rooted in values such

as participation, equity, and partnership – and characterized by three interconnected dimensions (Dooris, 2006a; Dooris & Hunter, 2007).

Ecological Model of Health Promotion

Firstly, reflecting multi-disciplinary influences, the approach is based on an ecological model of health promotion in which health is determined by a complex interaction of environmental, organisational, and personal factors. The approach reflects a shift of focus from individuals to populations, from illness to salutogenesis (Antonovsky, 1996), and from a reductionist focus on single issues, risk factors, and linear causality towards an holistic concern to develop supportive contexts in the places that people live their lives.

This ecological perspective ensures that "settings" are conceptualized not merely as culturally and socially defined locations in space and time, but also as "arenas of sustained interaction, with preexisting structures, policies, characteristics, institutional values, and both formal and informal sanctions on behavior" (Green et al, 2000, p.23).

Systems Perspective

Secondly, reflecting this ecological viewpoint and drawing on organisational theory, the approach views settings as complex dynamic systems with inputs, throughputs and outputs (Paton et al, 2005). This systems perspective acknowledges interconnectedness and synergy between different components (Capra, 1983; French & Bell, 1999) and suggests that: "the healthfulness of particular settings and the well-being of their participants are jointly influenced by multiple aspects of the physical environment . . .and the social environment" (Best, Stokols, Green, Leischow, Holmes, & Buchholz, 2003, p.170). It also recognizes that settings do not function as "trivial machines" (Grossman & Scala, 1993), but are both *complex* systems (unpredictable) and *open* systems (interacting with the other settings and the wider environment).

This latter point is important for a number of reasons (Dooris, 2001, 2004; Poland et al, 2000):

- health issues do not "respect" boundaries and an issue made manifest in one setting may have its roots in a different setting (e.g. bullying in schools);
- people's lives cross different settings, concurrently and consecutively (e.g. someone's time might be divided between work, leisure and home; or a period of detention in prison might precede resettlement into the community);
- there are micro-environments within each setting that offer different experiences, to different people on different days;
- and settings function at multiple levels with shared and separate domains, and, as "elemental" or "contextual" settings (Galea et al, 2000), may, like "Russian dolls" be located within the context of another (e.g. a school may be located

within a neighbourhood, within a city, within a region) – constituting nested settings within interconnected spatial and temporal layers (Bronfenbrenner, 1979; 1994).

Whole System Organisation Development and Change Focus

Thirdly, the approach uses organisation development to introduce and manage change within the setting in its entirety (Grossman & Scala, 1993; Paton et al, 2005) – applying "whole system thinking" (Pratt, Gordon, & Plampling, 1999). Drawing on the work of Barić (1993, 1994), it is important that the approach uses multiple, interconnected interventions and programmes to embed health within the culture, routine life and mainstream business of a specific setting; ensure living and working environments that promote greater health and productivity; and engage with and promote the health of the wider community.

A number of models have been developed to help move from conceptualization to operationalization: Paton et al (2005) have proposed the Healthy Living and Working Model, which highlights the use of organization development and systems theory in creating change; and Dooris (2004) has highlighted the need for a values-based approach that balances organization development with high visibility projects, top-down commitment with bottom-up engagement, and the health promotion agenda with core business concerns (see Figure 19.2).

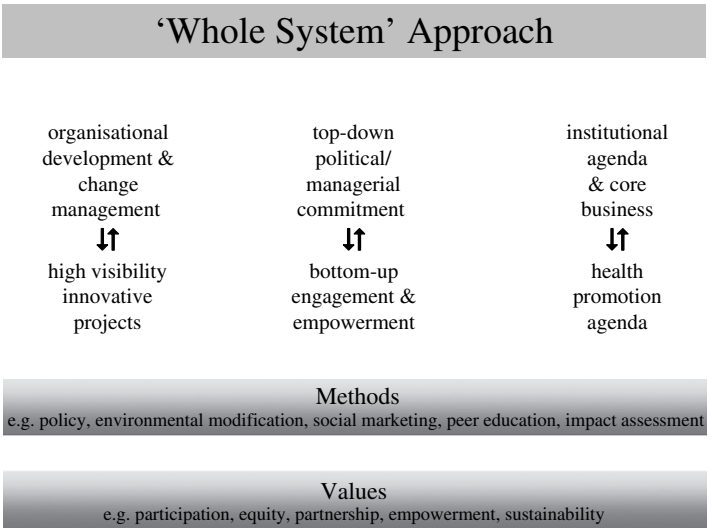

FIGURE 19.2. A model for conceptualizing and operationalizing the healthy settings approach

Source: adapted from Dooris (2004), produced with permission from Critical Public Health http://www.tandf.co.uk/journals

Box 19.1. Theory and practice – schools

Schools could become one of the most effective settings in which to improve health, education, and other social outcomes among large populations (Kolbe, Jones, Birdthistle, & Vince-Whitman, 2000; Scottish Health Promoting Schools Unit, 2006; U.S. Centers for Disease Control, 2006a; WHO, 1997b, 2006b). In theory, schools could improve these varied outcomes (Kolbe, 2002) for students, employees (Kolbe, Tirozzi, Marx, Bobbitt-Cooke, Riedel, Jones, & Schmoyer, 2005), families and the wider community by simultaneously implementing action in a number of interrelated areas (Kolbe, 2005):

- safe, healthy and supportive physical and psychosocial environments
- health, counselling, and social services
- healthy nutrition
- enjoyable, lifelong physical activity
- education that informs, motivates, and empowers students and employees to work for sustainable health at individual, family, community, national, and global levels.

To do this effectively requires the integrated efforts of students, families, staff, and public, not-for-profit, and private-sector agencies in and out of school hours. Whilst such an approach is being advanced by the Health Promoting Schools movement, relatively few schools integratively plan, implement, and evaluate such actions. Rather, they usually offer fragmented efforts to meet urgent health *problems* and fail to build mutual trust, enjoyment, commitment, and collaboration. Furthermore, schools infrequently help young people to build *assets* such as caring for others, connectedness, or civic engagement (Institute of Medicine, 2002; Moore & Lippman, 2004).

Thus, whilst we have extensive data about the impact of fragmented risk-specific interventions implemented within schools, we have much less about the effects of school health interventions on education outcomes or social assets, or about the effectiveness of whole school approaches that strategically integrate multiple interventions.

Box 19.2. Theory and practice – cities

The WHO Healthy Cities project aims "to put health on the agenda of decision-makers" (Tsouros, 1995, p.133). The logic of this aim is that, with increased social and political status, more appropriate action for health can be taken in the urban context.

Cities were therefore encouraged to embark on innovative approaches to strengthen the presence of health in the social and political discourse. Some cities (e.g. Bologna, Horsens, Copenhagen) took a community perspective,

opening 'health shops' – which used community development and self-help approaches to engage the public. Others (e.g. Kuressaare, Noarlunga, Bangkok) built on existing political debates, utilising community action, advocacy, and research to address issues such as tourism, sustainable economic development, environmental concerns, and transportation. A number (e.g., Krakow, Kuching, Accra) generated data demonstrating the epidemiological evidence for doing things differently: air pollution monitoring systems were established, communities were engaged in producting health information, and environmental aspects of sanitation were highlighted. Finally, a range of cities (e.g. Tainan, Torun, Johannesburg) were enabled, through the international prominence of the programme, to engage in interventions that were before considered unrealistic or unfounded: community empowerment programmes, a city-wide tobacco control strategy, or the use of televised health-oriented soap operas.

Whilst all found inspiration in the rich framework provided by Healthy Cities and grounding in the unique environmental, social and political contexts of their administrations' work, the sheer diversity illustrates just how challenging it is to establish 'across-the-board' evidence of effectiveness for Healthy City programmes.

Box 19.3. Theory and practice – virtual settings

Information technology provides countless settings (e.g. internet, telemedicine, health portals, online support groups) – where people can conveniently access and retrieve information, and be supported in their behaviour change efforts (Evers, 2006). However, technology may fail to address the broader determinants of health, further widening health inequalities, as health literacy issues compounded by the digital divide disenfranchize access for those with few resources (Hirji, 2004; Lorence & Greenberg, 2006; Nguyen, Carrieri-Kholman, Rankin, Slaugher, & Sulbarg, 2004; Norman & Skinner, 2006; Skinner, Biscope, & Poland, 2003). Furthermore, the growth of e-learning may well undermine the social connections that healthy settings facilitate (St Leger, 2006), changing as it does both the ethos of education settings and people's experience of education and professional development.

Calls for building social capital, networks and bonds virtually (Bolam, McLean, Pennington, & Gillies, 2006) cite examples from politics where online activity has influenced off-line activism (Wellman, Haase, Witte, & Hampton, 2002). For example, TeenNet (http://www.teennetproject.org/) encourages behaviour change as well as online activism, social support, and mutual aid, reflecting a 'virtual' community development approach (Lombardo & Skinner, 2003–2004; Lombardo, Zakus, & Skinner, 2002; Skinner, Biscope, Poland, & Goldberg, 2003).

Although descriptive research suggests that virtual settings are valuable channels for distributing health information or counselling support (Suggs, 2006), the challenges of conducting high quality research online have limited rigorous and wide-ranging evaluation (Bessell, McDonald, Silagy, Anderson, Hiller, & Sansom, 2002; Eng, 2002; Nguyen et al, 2004). Moreover with few exceptions, virtual settings – rooted in communication, behaviour change and psychological theories – have assumed an interventionist stance, perpetuating "traditional individually-focused intervention(s)" (Wenzel, 1997 cited in Dooris, 2006b, p.4).

Evidence of Effectiveness

Introduction

We have argued that the settings approach is essentially characterized by an ecological whole system perspective – and would further contend that this contributes a richness and coherence that can make health promotion more relevant, appropriate, and effective than "traditional" narrowly focused topic-based and disease-specific interventions. However, in asserting these benefits, we acknowledge the implications for building evidence of effectiveness – and make explicit the "evaluation paradox" that emerges.

In this section, we will briefly outline the current situation and consider the challenges presented. Rather than attempting a comprehensive review of the existing evidence base, we highlight key points and provide examples.

The Current Situation

In terms of effectiveness, the settings approach is perceived to have a number of benefits (Dooris, 2004). It encourages connections between people, environments and behaviours to be explored within everyday places; it allows relationships between different groups of people to be recognized; it enables interactions between different issues to be taken into account; it looks outward as well as inward, facilitating intra- and inter-organisational awareness of wider impacts on health and sustainability at local, national and global levels; and it provides opportunities to harness the contribution of a range of settings to "joined-up" public health.

Despite these perceived benefits and significant advances in evaluation, it would seem that the approach has an uneven and under-developed evidence base (see Boxes 19.4 and 19.5). Settings seem to provide a framework for planning, implementing, and evaluating comprehensive behaviour and environmental change interventions, and documenting health outcomes (Goodstadt, 2001; Nutbeam, 2000), yet significant challenges remain. As St Leger (1997, p.100) argues: "The settings

Box 19.4. Evidence – Schools

In relation to schools, the value of the 'whole school approach' is widely recognized. However, the belief that comprehensive programmes are most likely to achieve and sustain benefits (National Health and Medical Research Council, 1996; St Leger and Nutbeam, 2000) has not generally been translated into appropriate research – and the vast majority of studies concern the effectiveness of individual health interventions implemented *in* the school setting (see Chapter 8).

Thus, there is scant data on such comprehensive programmes, and there are ongoing difficulties with both evaluation and implementation (Deschesnes, 2003; Lister-Sharp, Chapman, Stewart-Brown, & Soden, 1999; McIntyre, Belzer, Manchester, Blanchard, Officer, & Simpson, 1996; Mũkhoma & Flisher, 2004). This is partly because of the variation between different schools (Honig, 2006), but also because the approach is relatively new and instruments are still being developed and tested (Australian Health Promoting Schools Association, 2002; Lee, Cheng, & St Leger, 2005; Lohrmann, 2006; Rowling & Jeffreys, 2006; US Centers for Disease Control, 2005, 2006b; WHO, 1996). Furthermore, there has been a tendency to "define out, simplify, or edit out 'complex variables', relationships, structures and processes in an attempt to gain insight into the complex organisations that are schools" (Colquhoun, 2006, pp.41–42).

More optimistically, in a recent synthesis, Stewart-Brown (2006, p.17) has concluded that effective school health promotion programmes are likely to be intensive and of long duration, and "complex, multifactorial and involve activity in more than one domain (curriculum, school environment and community). These are features of the health promoting schools approach, and to this extent these finding endorse such approaches."

Box 19.5. Evidence – Cities

In relation to Healthy Cities, de Leeuw & Skovgaard (2005) conclude that the general evidence that the programme works does not translate to a problem-solving perspective that can inform decision-making.

As stated in Box 2, although the general ambition of Healthy Cities is clear ('to put health high on social and political agendas'), evidence-related demands are extremely diverse:

Funders, often health agencies, want to know whether activities yield more health. When related to particular programmes in unique cities, there is ample evidence that programmes such as community empowerment (Wallerstein, 2006), adapted to specific urban environments and with appropriate developmental perspectives, are effective.

Politicians want to know additionally whether policies provide an appropriate return on investment – whether they advance political agendas. Whilst evidence on oral health in the Brazilian city of Curitiba shows that broad-based healthy public policies inspired by Healthy Cities are effective (Moysés, Moysés, McCarthy, & Sheiham, 2006), this is not to say that such evidence furthers a city's political agenda.

Academics have yet to accept fully that appropriate evidence cannot come from randomized controlled trials (RCTs) or quasi-experimentation alone – despite well-articulated arguments that evidence is multi-factorial, can be generated through multiple-method research designs, should involve health producers, and has to be weighed in an almost judicial approach (Tones, 1997).

Nevertheless, it is this approach that would do ultimate justice to the diversity of Healthy City characteristics. Kegler, Twiss, & Look (2000) have highlighted the centrality of systems thinking in Healthy City evaluation and Poland (1996) has argued that "the complex multifaceted causal web surrounding the sorts of long-term impacts the . . .[healthy communities] movement is seeking to make is a sobering reminder of the limitations of conventional evaluation science." The solution advocated by de Leeuw & Skovgaard (2005) is that 'real' evidence should be useful to those who need it – and that such 'utility-driven evidence' can only be generated through extensive collaboration between partners.

approach has been legitimated more through an act of faith than through rigorous research and evaluation studies . . .much more attention needs to be given to building the evidence and learning from it."

Challenges Faced in Evaluating the Settings Approach and Building Evidence of Effectiveness

Health promotion has experienced a number of general difficulties in responding to the demand for evidence of effectivenesss. Nutbeam (1999, p.99) has commented: "It is a challenge to assemble 'evidence' in ways which are relevant to the complexities of contemporary health promotion, and to avoid the possibility that this may lead action down a narrow, reductionist route." The response to this challenge has seen a call for the use of both quantitative and qualitative data, for a greater breadth of evidence, for an "evidence into practice into evidence" cycle, and for a consideration not only of what works, but also of how and under what conditions.

However, as discussed in detail by Dooris (2006a), it can be argued that for those using the settings approach, a number of specific challenges have made it problematic to undertake consistent, rigorous evaluation and have added to the general difficulties of building evidence of effectiveness.

Diversity of Conceptual Understandings and Real-Life Practice

Firstly, the settings "banner" embraces a diversity of both conceptual understandings and real-life practice (Green et al, 2000; Poland et al, 2000; Whitelaw et al, 2001), making it difficult to build a substantive body of research that allows comparability and transferability. A number of issues are of relevance:

Conceptual variation: Despite a growing literature prioritising an ecological systems perspective, there remains a tendency to conflate "health promotion in settings" with the settings approach (Wenzel, 1997). Recognising this conceptual variation and the confusion it can cause, Whitelaw et al (2001) have formulated a typology that distinguishes different forms of of settings-based practice, reflecting different analyses of the problem and solution in terms of whether the focus is more on the individual or the setting/system. The challenge to evaluation is evident – and constitutes "a political as well as scientific process" (Connell & Kubisch, 1998 cited in Mackenzie & Blamey, 2005, p.153).

Practical considerations: Whitelaw et al (2001) also discuss the influence of practical considerations on practice, highlighting real life constraints and opportunities within different settings, and the challenges of translating theory into action. As Dooris (2004, p.44) has noted, "whilst the theoretical framework guiding the work may be rooted in systems thinking and organisational development, the practice is often constrained to smaller-scale project-focused work around particular issues." In terms of evaluation and subsequent dissemination, this highlights again the centrality of context and of "exploring what works better for whom in what circumstances, and why" (Pawson & Tilley, 1997 cited in Stame, 2004, p.58).

Size and type of settings: As previously highlighted, the approach has expanded to include a wide range of settings, diverse in size and form. This suggests a need for clarification of similarity and difference within and across categories of settings (Dooris, 2004; Poland et al, 2000). Methods used within "total institutions" such as prisons or hospitals will differ from those used in less formal settings; and in terms of effectiveness, it may be easier to demonstrate whole system change within a small setting such as a primary school than in a large multi-layered setting such as a university, or indeed, a city.

Standards and accreditation: An additional distinction must be drawn between programmes with agreed accreditation criteria or standards (e.g. schools and hospitals) and those without a widely recognized programme (e.g. universities). Although subject to criticism (Jones & Douglas, 2002) in terms of their failure to take account of cultural, economic and social variations, accredited programmes clearly facilitate evaluation.

Focus on Diseases and Single Risk Factors

Secondly, the established evidence "system" for health promotion retains a primary focus on single risk factor interventions and specific diseases/problems rather than on multiple interventions and settings. A few reviews have looked specifically at programmes such as Health Promoting Schools (e.g. Lister-Sharp et al, 1999; Stewart-Brown, 2006) and drawn promising conclusions regarding the value of a

whole system approach. However, most reviews that consider a particular setting are only concerned to assess the value of discrete interventions designed to impact on one specific risk factor.

It would, then, appear that the evidence base has continued to be structured following a medical model – despite discussion of a "paradigm shift" in health promotion (Barić, 1994). This reflects the continuing priority given to disease and behaviour based targets in health policy (Ziglio, Hagard, & Griffiths, 2000), leading to more funding being available for evaluation of issue-based than settings-based initiatives; and the fact that most research designed to evaluate complex, ecological programmes does not qualify for inclusion within systematic reviews and meta-analyses – although there is optimism that this will change with the general broadening of approaches (Nutbeam, 1999; Jackson & Waters, 2005).

Complexity of Evaluating Ecological Whole System Approaches

Thirdly, it *is* very complex to evaluate the settings approach as conceptualized above – characterized by an ecological model, a systems perspective and whole system thinking. Such an approach involves multiple interconnected interventions tailored to the culture and needs of a specific setting, and the prioritisation of organisation development, participation and empowerment to ensure that these interventions are owned and modified by local actors, and become embedded in routine life. Two points can be usefully highlighted:

Ecological complexity: An ecological perspective focuses on the interactions and interdependence between different elements within ecosystems, highlighting the relationships between people and settings (McLaren & Hawe, 2005). In applying systems thinking to health promotion, we are encouraged to focus not only on the individual components but on the spaces in between, on the arrows that join up the bubbles in addition to the bubbles themselves (Barić & Barić, 1995). As Senge (1990, p.68) has argued: "Systems thinking is a discipline for seeing wholes. It is a framework for seeing interrelationships rather than things, for seeing patterns of change rather than static "snapshots".

In relation to health-promoting schools, Rowling and Jeffreys (2006, p.708) have noted that: "Researchers fail to recognize and monitor the synergy created by integrating components, give it minor status in reporting or omit "process" completely. This ignores an essential quality in a settings approach – the interaction of components in a specific context." The need to acknowledge and take account of synergy *between* settings adds further complexity to the evaluation challenge, and highlights the value of networks operating "horizontally" as well as "vertically" (Dooris, 2004).

Integration and visibility: It can, paradoxically, be argued that the more successful a settings-based initiative is, the harder it will be to isolate its unique contribution to organisational and personal change. Effective mainstreaming is likely to make health promotion less visible as a tangible entity and a key challenge is to allow the language of health (as an enterprise somehow separate from the core business of the setting) to recede. This is illustrated in a review of workplace health promotion, which reflects that many organisation-level interventions are

"performed without any direct link to health and thus have an unspecified effect on ill health and well-being" (Breuker & Schröer, 2000, pp.103–104).

Implications for Future Research

Whilst there has been a convergent recognition of the importance of ecology and systems thinking in fields such as health promotion (Best et al, 2003; Green, Richard, & Potvin, 1996; Stokols, 1996), education (Fullan, 2003; Senge, Cambron-McCabe, Lucas, Smith, Dutton, & Kleiner, 2000), and business (Gharajedaghi, 1999; Senge, 1990), this has not been translated into clear guidelines to inform research and evaluation. It would seem to us that, for the most part, those evaluating health promoting settings initiatives have struggled to apply such a perspective.

If we are to capture the added value of ecological, whole system working, and build convincing evidence of effectiveness for the settings approach, we cannot merely focus in isolation on individual interventions operating as part of a settings initiative. Instead, we must design evaluation studies that adopt non-linear approaches, looking at the whole and mapping and elucidating the interrelationships, interactions and synergies within and between settings – with regard to different groups of the people, components of the system and "health" issues. It is also important for researchers to utilize multi-method approaches (Pan American Health Organisation, 2005), acknowledge the synergistic effects of combining a variety of methods to answer different evaluation questions (Baum, 1995; Steckler et al, 1992), and integrate "health" measures with measures that relate to the core business of the setting (Lee et al., 2005).

With a particular focus on the third challenge outlined above, we will now highlight some key implications for future research, discussing key theoretical and methodological innovations in two related areas: critical realism and complexity theory. Critical realism emphasizes discovery of underlying logic, using theory to discern generative mechanisms that endure across space-time, but whose expression is highly variable, contingent, and context-bound. In contrast, complexity theory places more emphasis on the organic, emergent nature of innovation and adaptation, and suggests different principles for the management of organizational and social change initiatives.

We believe that harnessing and applying thinking from these two fields offers enormous potential for overcoming the limitations of traditional evaluation models and helping generate evidence of effectiveness for ecological, whole system settings-based health promotion.

Critical Realism and Critical Realist Evaluation

Critical realist evaluation represents a promising, but underutilized, approach to understanding how interventions work or fail in particular contexts – i.e. which elements of context matter, and why (Poland, Frohlich, & Cargo, 2007). Critical

realism is a logic of inquiry, drawing on the work of Bhaskar (1979), whose central premise is that constant conjunction (empirical co-occurrence) is an insufficient basis for inferring causality, and that what is required is the identification of generative mechanisms whose causal properties may or may not be activated, depending on circumstance (Connelly, 2001; Julnes, Mark & Henry, 1998; Stame, 2004; Williams, 2003). It is a theory-driven approach whose starting point is the distinction between the *empirical* (what is observed), the *actual* (events and experiences that may or may not be observed/observable), and the *real* (the domain of underlying causal mechanisms) (Williams, 2003). Further, mechanisms can coincide under real world conditions to produce *emergent properties* contingent in time and space (Sayer, 2000).

Thus, from a critical realist perspective, context is not an undifferentiated social ether in which programmes and phenomena "float", but a series of generative mechanisms in constant interaction with complex and contingent combinations of events and actors. The notion of contingency contrasts with positivist notions of universal logical necessity (natural laws, generalizable truths) by highlighting the uncertain nature of phenomena (i.e. that propositions may hold true only under certain circumstances).

As these generative mechanisms may only be discernible because of their effects (contingent in space-time), critical realist program evaluations must be grounded in theories that specify what generative mechanisms are triggered (or suppressed) by which intervention elements, under which conditions. Generative mechanisms refer to program mediators that interventions seek to modify. Weiss (1997) argues for developing sound program theory, specifying the interrelated sequence of events expected to occur and how they relate to each other in space and time, thereby making transparent the underlying logic and assumptions of a given intervention.

From this perspective, the central evaluative question is not so much *whether* certain programmes (or parts of programmes) work – what Stame (2004) refers to as "black box" evaluation – but "to 'unpack the mechanism' of *how* complex programmes work (or *why* they fail) in particular contexts and settings" (Pawson, Greenhalgh, Harvey & Walshe, 2004, p.1). These "how" and "why" questions are critical to decision-making regarding which programmatic components are worth replicating in which circumstances.

Thus it is possible to (re)define context as: "The (local) mix of conditions and events (social agents, objects and interactions) which characterize open systems . . .whose unique confluence in time and space selectively activates (triggers, blocks or modifies) causal powers (mechanisms) in a chain of reactions that may result in very different outcomes depending on the dynamic interplay of conditions and mechanisms over time and space" (Poland, Frohlich, & Cargo, 2007). This gives us a more workable and concrete definition of social context that offers a way to transcend the "evaluation paradox" described above (i.e. that successful embedding of interventions in settings and systems makes their impacts harder to observe and measure). Moreover, a critical realist approach – with its emphasis on theory-based evaluation – provides

a further motivation to address the first challenge highlighted, by clarifying the conceptual basis of settings-based health promotion and articulating the interrelated web of hypotheses, assumptions, processes and anticipated outcomes that constitute a complex initiative (Dooris, 2006a).

Complexity Theory

Complexity theory is the second theoretical perspective that we would suggest holds promise for those seeking to build evidence for the settings approach to health promotion. Its central object of inquiry is the complex adaptive system (CAS) – "a collection of individual agents with freedom to act in ways that are not always totally predictable, and whose actions are interconnected so that one agent's actions change the context for other agents" (Plsek & Greenhalgh, 2001, p.625). A CAS is thus a complex, non-linear and interactive system, within which "semi-autonomous agents . . .adapt by changing their rules and, hence, behaviour, as they gain experience" (Zimmerman, Lindberg, & Plsek, 2001, p.263).

Complexity theory is of particular interest because it shines a spotlight on those aspects of reality that traditional organization development theory sees as irrelevant or troublesome, or doesn't see at all. It draws on new discoveries in the biological and social/organizational sciences; empirical examples of the failure of central planning (e.g. strategic planning exercises that produce little change); and the power of groundswell, organic innovation from the margins (e.g. the emergence of the internet). It is a perspective that emphasizes the power of distributed (as opposed to centralized) control, relationships between relatively self-organizing individuals, the co-evolution of systems in embedded environments, and the relationship of micro and macro.

Applied in the field of organization development, complexity theory differs from traditional management theories that emphasize planned change through better (more) specification and hierarchical control of players, processes, and outcomes that are inherently slippery, potentially resistant, and ultimately not always open to influence using traditional techniques. It suggests that the key to the kind of adaptive innovation required in a changing and fast-paced world is the identification of new ways to harness the creativity and knowledge of frontline staff, by stimulating and supporting "communities of practice" (Brown & Duguid, 1991; Wenger & Snyder, 2000; Westley, Zimmerman & Patton, 2006) and by drawing on the kinds of principles outlined in Table 19.1 (Zimmerman et al, 2001).

The result is a very practical, but very different, basis for initiating, supporting, and harnessing adaptive change that seems much more attuned to the realities of late-modern (organizational) settings. The many examples described by Zimmerman et al (2001) of how these ideas are operationalized in health care settings suggests what might be possible within the field of health promotion if those seeking to implement and evaluate settings-based initiatives and programmes were to harness and apply perspectives from complexity theory.

TABLE 19.1. Nine organizational and leadership principles from the study of complex adaptive systems

Principle	Full statement of principle	Further explanation or contrast to the traditional approach
1. Complexity lens	View your system through the lens of complexity . . .	. . . in addition to the metaphor of a machine or a military organization.
2. Good-enough vision	Build a good-enough vision and provide minimum specifications . . .	. . .rather than trying to plan out every detail.
3. Clockware/ swarmware	When life is far from certain, lead from the edge, with clockware and swarmware in tandem . . .	. . .that is, balance data and intuition, planning and acting, safety and risk, giving due honor to each.
4. Tune to the edge	Tune your place to the edge by fostering the 'right' degree of: information flow, diversity and difference, connections inside and outside the organization, power differential and anxiety . . .	. . .instead of controlling information, forcing agreement, dealing separately with contentious groups, working systematically down all the layers of the hierarchy in sequence, and seeking comfort.
5. Paradox	Uncover and work with paradox and tension . . .	. . .rather than shying away from them as if they were unnatural.
6. Multiple actions	Go for multiple actions at the fringes, let direction arise . . .	. . .rather than believing that you must be sure before you can proceed with anything.
7. Shadow system	Listen to the shadow system . . .	. . .realizing that informal relationships, gossip, rumour, and hallway conversations contribute significantly to agents' mental models and subsequent actions.
8. Chunking	Grow complex systems by chunking . . .	. . .by allowing complex systems to emerge, out of the links among simple systems that work well and are capable of operating independently.
9. Competition/ cooperation	Mix cooperation and competition	. . .it's not one or the other.

Source: Zimmerman et al (2001)

Conclusion

In this chapter, we have proposed a rationale for the settings approach to health promotion based on the importance of context and the need to invest in the places where people live their lives. We have also suggested that the approach reflects an ecological model of health promotion, is informed by systems thinking, and focuses on whole organization change through multiple interconnected interventions concerned to improve health and enhance productivity.

However, despite a widespread perception that the approach is both appropriate and effective, those engaged in evaluation and evidence generation face important challenges – including the diversity of both theory and practice that is presented as settings-based health promotion; the evidence system's continuing focus on diseases and single risk factors; and the very real difficulties of evaluating ecological, whole system health promotion characterized by synergy and integration. In addressing these challenges and considering implications for future research, we have suggested that the two related areas of critical realism and complexity theory offer potentially exciting and valuable opportunities to overcome the restrictions of traditional evaluation and help build evidence of effectiveness for settings-based health promotion.

Before concluding, it is useful to return to the values that underpin the settings approach – because evaluation and evidence are essentially value-based (Raphael, 2000). We want to highlight three key values – participation, equity, and partnership.

As the logic of the settings approach is a non-medical one, it may be more easily understood by community members and political decision-makers than by "health" professionals (Kickbusch, 1996). Participatory action research is entirely compatible with a systems perspective and ecological model, encouraging a shift away from a disease and risk factor mindset (Leung, Yen, & Minkler, 2004) and allowing a better understanding of the context and reality of life (Satterfield, Volansky, Caspersen, Engelgau, Bowman, Gregg, Geiss, Hosey, May, & Vinicor, 2003). As a method of inquiry, it is built on trust and equity, and characterized by working *with* community partners and citizens in all aspects of research from community assessment to evaluation (Kelly, 2005). It blends collaborative investigation, education, and action, and provides a mechanism to help make epidemiological findings locally relevant, setting specific, and provide apposite answers to community health issues (Kelly; Leung et al., 2004). It crosses disciplinary boundaries and is concerned with social justice and equity, drawing as it does on the settlement house tradition (in many ways a forerunner to the healthy communities movement), which in the late 19th and early 20th centuries responded to the problems of rapid industrialization and urbanization (Koerin, 2003).

In terms of equity, health promotion must grapple not only with the health-related impacts of inequality, but also with the way that social relations (economic and political systems, institutional and cultural practices) create, maintain, and reproduce inequalities in health (Eakin, et al, 1996). Such power relations play a central role in the marginalization and disempowerment of people locally and globally. Settings-based health promotion must therefore seek to address issues of equity and power relations – within, outside and across settings. Green et al. (2000, p.24) suggest that health promotion may have inadvertently "played into existing power relations and alliances" within settings by aligning itself with management, thereby marginalising or alienating less powerful groups (e.g. workers, students). A further concern is the need for health promotion policy, practice, and research to extend its focus to less traditional settings – recognizing that, with a few exceptions such as prisons, "the settings in which one is to find the unemployed, the homeless, the disenfranchised youth, the illegal immigrants, and so forth are not as well defined" (Green et al, 2000, p.25). The effectiveness of healthy settings

initiatives must also be judged in terms of their focus on organisational structures, policies, and practices that redress inequalities, and their successful advocacy for macro-level social, economic and political change.

Issues of equity and power relations become even more evident within complex settings such as cities, which involve forming partnerships between a diversity of stakeholders from multiple sectors (Costongs & Springett, 1997), and when connecting between and working across settings. However, if we are to build credible evidence of effectiveness for the settings approach, we need to prioritize such collaboration and utilize networks (both setting-specific and cross-setting) to understand and capture the synergy and "added value" of whole system health promotion. This will require a dual focus, evaluating how the approach impacts on health and how it influences the achievement of "core business" goals. It will also require a broadening of the evidence base across sectors and disciplines to reflect the intersectoral nature of settings programs (Rowling & Jeffreys, 2006).

Looking to the future, we face considerable challenges in articulating with simplicity and clarity the theory and practice of the settings approach, and in building evidence of effectiveness for this ecological, whole system health promotion, in ways that reflect the underpinning values of participation, equity, and partnership. By harnessing innovations from critical realism and complexity theory, we have the opportunity to move beyond traditional evaluation – paying increased attention to "the social context of interventions that are evaluated" (McQueen, 2002, p.83) and understanding settings "in a way that celebrates complexity rather than trying to control for it" (Colquhoun, 2006, p.42).

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