

Chapter 18

Mixed Methods' Contribution to the Evaluation of Health Promotion Initiatives in the School Setting

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Abstract The development of suitable approaches for evaluating health promotion in schools to produce useful evidence to enhance sustainability and transferability is still a major topic of discussion. There is currently a trend among health promotion researchers to develop evaluation approaches that are able to measure the impact of an initiative as well as to understand how this impact is obtained in order to inform the implementation of sustainable health promotion initiatives by practitioners and decision-makers from both health and education sectors. This chapter sets out to illustrate the contribution of mixed methods to take into account the complexity of school health promotion initiatives to help address the challenges faced by the field of school health promotion especially those related to evaluation, sustainability and transferability. Empirical data gathered from an intervention research implemented in the French context are used to highlight the interest of such a research strategy.

Keywords Evaluation • School health promotion • Mixed methods • Teacher training

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18.1 Introduction

The contribution of health promotion to the health and well-being of pupils has been widely recognized (Hamel et al. 2001; Li et al. 2009; St Leger et al. 2007) as well as the key role played by schools (St Léger 2004; OECD 2010). Recent publications from the World Health Organization (WHO) and from the Organisation for Economic Co-operation and Development (OECD) showed a very close link between health and education. The work from the WHO, carried out by Suhrcke and de Paz Nieves (2011), tends to show the negative influence of a “bad” health status (obesity, sleeping issues, anxiety and depression) and of health behaviours (smoking, alcohol and cannabis consumption) on the academic achievements of children and youth (Suhrcke and de Paz Nieves 2011). From a complementary perspective the OECD (2010) highlights education’s contribution both to health improvements and to the strengthening of civic and social involvement. It also points out that education, within national school systems, cannot alone achieve these goals of health improvement and social cohesion; the key role of families and the community also need to be recognised (OECD 2010).

Therefore, in the past decades, schools have been a major setting for implementing health promotion initiatives and the scientific literature tends to show some positive achievements of such initiatives on pupils’ health and schools’ organization (Stewart-Brown 2006; St Leger and Young 2009). The synthesis carried out by Stewart-Brown (2006) shows that health promoting school approaches were found to have a beneficial effect on: the social and physical environment of the school, staff development, provision of school meals, provision of exercise programmes, and the school’s social climate. The author also highlights that positive impacts on health-related behaviours were identified in some studies but not all. She also mentions there was some evidence that mental and social well-being may benefit from the development of school health promotion initiatives. However, most of the studies were small-scale and their quality was variable. In their literature review, Mõkoma and Flisher (2004) specify that impact can also be observed at a school level in terms of political and organizational development to support health promotion implementation, its integration within the curriculum and the involvement of parents and community (Mukoma and Flisher 2004). Moreover, Lee and his colleagues (2005) highlight that links can be found between school health promotion and issues related to school improvement and school effectiveness, showing that health promotion can both benefit health and education sectors (Lee et al. 2005).

The literature also presents a body of evidence regarding the factors that influence the quality of health promotion initiatives implemented in the school setting (St Leger et al. 2007). Literature reviews carried out in the past few years agree on several factors as essential for the success and the quality of these initiatives (Lister-Sharp et al. 1999; Stewart-Brown 2006; St Leger et al. 2007; St Leger and Young 2009; St Leger 2005; Peters et al. 2011). They identified three main aspects:

- Involvement of the school community as a whole and addressing all the aspects of school life;
- Addressing the school social environment (relationships between pupils and staff, among pupils, among staff and between parents and schools);
- Development of children's life skills.

Some authors also add factors such as the length of the initiative, the staff's collective work, the institutional support and actors' support and training (St Leger 1999; Han and Weiss 2005; Peters et al. 2011).

In spite of these results, the development of suitable approaches for evaluating health promotion in schools in order to produce useful evidence to enhance sustainability and transferability is still a major topic of discussion (St Leger et al. 2007). There is currently a trend among health promotion researchers to develop evaluation approaches that are able to measure the impact of an initiative as well as to understand how this impact is obtained in order to inform the implementation of sustainable health promotion initiatives for both health and education sectors (Rowling 2009). Furthermore, school health promotion initiatives can be considered as complex systems, i.e. systems that consist of multiple components; that can only be understood by observing the interactions of these components; and are open-systems interacting with and influenced by their environment (Burton 2002). Implementing such initiatives may mean school communities and their partners changing some of their working habits and adapting them to the specificities of health promotion within the school setting (Mérini et al. 2010).

Against this backdrop, this chapter sets out to illustrate the contribution of mixed methods to the evaluation of school health promotion initiatives. The purpose is to take into account their complexity to inform the development of sustainable initiatives.

After presenting a brief overview of the challenges and issues related to health promotion evaluation and more precisely to the evaluation of school health promotion, we will discuss the opportunity of using mixed methods in evaluation approaches to embrace some of these challenges. We will then illustrate this discussion using the example of the evaluation of a French initiative for school health promotion. The evaluation design will be described and some major results will be presented. The chapter will conclude with some comments regarding the use of mixed methods in designing methods to evaluate school health promotion.

18.2 Issues in Evaluating School Health Promotion – How can Mixed Methods help?

As mentioned in the introduction, evaluation is still a major topic of discussion within the field of health promotion. Various evaluation approaches have been used in health promotion (Tones and Tilford 2001). They are influenced by the multidisciplinary nature of health promotion and refer to various traditions. In this section,

the main issues raised by evaluation in the field of health promotion and school health promotion are first reviewed. The opportunity of using mixed methods is then discussed through the presentation of what some authors considered as a third methodological tradition (Johnson et al. 2007).

18.2.1 Issues Raised by Evaluation in the field of Health Promotion and School Health Promotion

According to the definition given by the WHO, evaluation aims to produce information that can be used by those who have an interest in the improvement and effectiveness of interventions (WHO 1998). However, evaluation in the field of health promotion has raised particular issues (Rootman et al. 2001).

These issues are illustrated by Merzel and D’Afflitti (2003) who conducted a systematic literature review of 32 community-based health promotion programmes. They identified five main issues: (1) methodological issues including the choice of the unit of analysis (individuals, communities, etc.) and design and sampling issues; (2) the influence of secular trends and the difficulty of separating the impact of health promotion programmes from these trends; (3) smaller-than-expected effects, i.e. relatively small effects are to be expected from community-level programmes; (4) limitations of the health promotion programmes including their duration, insufficient tailoring to reflect local conditions and the difficulty for community-level programmes to ensure sufficient community penetration; and (5) limitations of the theory because of the complexity of conceptualizing the relationship between multiple interventions and multiple levels of influence which makes it difficult to develop integrated explanatory theories as well as testable models (Merzel and D’Afflitti 2003). Other authors also pointed out further issues such as the complexity of the causality between a health promotion programme and its effects, and the unsuitability of the experimental evaluation process of the health promotion values enshrined in the Ottawa Charter, i.e. the holistic nature of health promotion interventions and the values of participation, collaboration and empowerment (Nutbeam 1998; Tones and Tilford 2001). Potvin and colleagues identified three main challenges for those evaluating health promotion programmes: (1) defining the activity to be evaluated in order to raise relevant evaluation questions, (2) implementing an appropriate, rigorous research methodology, and (3) producing relevant knowledge for actions (Potvin et al. 2008).

More specifically, regarding the evaluation of health promotion initiatives in the school setting and the type of evidence produced by these studies to inform practitioners and policy makers, Rowling and Jeffreys (2006) argued for considering research from both education and health sectors and for trying to articulate evidence from both sectors in order to inform planning and strengthen partnerships. These authors also pointed out the importance of considering contextual issues such as

school practice and local policy factors, when evaluating school health promotion interventions (Rowling and Jeffreys 2006).

The specificities of health promotion initiatives and especially within the school setting lead us to consider methodological approaches that could potentially capture the complexity of such initiatives.

Chen (1997) suggested that there are three types of configuration depending on programme evaluation contexts. In the first configuration, the programme evaluation context requires intensive information, has low availability of credible information and has a highly open programme system. In this type of configuration, it is more appropriate to use qualitative methods. In the second configuration, the evaluation context requires extensive, precise information, has high availability of credible information and has a closed programme system. This would require a quantitative approach. The third configuration concerns programme evaluation contexts requiring information that is both intensive and extensive, that provide high access to some information but low access to other information and have the characteristics of both open and closed systems. In this case, the use of mixed methods is the most appropriate (Chen 1997). Due to their complexity, most health promotion interventions in school settings can be considered as an example of this last case. Moreover, mixed methods and methodological pluralism are increasingly used within the field of health promotion (Nutbeam 1998; Tones and Tilford 2001). In the next section of this chapter, we propose a brief overview of this emerging methodological field.

18.2.2 Mixed Methods: A Combination of Qualitative and Quantitative Methodological Approaches

In the past, quantitative and qualitative methods have been blended by researchers in various research fields, but it is only recently that this association was conceptualized as mixed methods research. Some authors have qualified this emergent field as a third methodological tradition (the two others being the qualitative and quantitative traditions) (Johnson et al. 2007).

Generally, the first reason for using mixed method is to offset the weaknesses of both quantitative and qualitative approaches. Therefore, this methodological approach makes it possible to integrate several perspectives and presents an added value for the study of complex interventions. This is particularly true in school health promotion where interdisciplinarity is a key concept and where there is a degree of uncertainty of the outcomes, that may only be long term and with a non-linear relationship between programme and outcomes. Moreover, there is a strong interaction with the school context as well as the involvement of multiple stakeholders (teachers, parents, children, etc.) (Jourdan 2011). Therefore, using more than one method within a research project may produce a more complete picture of the

phenomena being studied (Morse 2003) and may help answer questions that cannot be answered by one approach alone.

Creswell and Plano Clark (2007) defined mixed methods research as the combination of quantitative and qualitative approaches that provide a better understanding of research problems than either approach alone. The literature shows that mixed methods research provides more comprehensive evidence for studying a research problem than either quantitative or qualitative research alone; encourages researchers to collaborate; encourages the use of multiple worldviews or paradigms; and is 'practical' in the sense that the researcher is free to use all possible methods to address a research problem (Creswell and Plano Clark 2007). Although, there is a consensus on what should be mixed, i.e. qualitative and quantitative approaches, debates still exist on when approaches should be mixed (at the data collection stage, the data analysis stage or throughout the research project), why they should be mixed and the reasons for choosing a mixed methods approach (driven by the research questions or the evaluator's philosophical stand) (Johnson et al. 2007).

The mixed methods approach can vary in design depending on how the qualitative and quantitative approaches are combined. Creswell and Plano Clark (2007) classified the mixed methods designs into four major types:

- Triangulation: its purpose is to obtain a more complete understanding of a phenomenon from two databases, to corroborate results from different methods or to compare multiple levels within a system;
- Embedded: one data set provides a supportive, secondary role in a study based primarily on the other data type, its purpose is to address different questions that call for different methods or to enhance an experiment by improving recruitment procedures, examining the intervention process or explaining reactions to participation;
- Explanatory: a two-phase mixed methods design where qualitative data helps to explain or build upon initial quantitative results, for example to help explain quantitative results that need further exploration or to purposefully select best participants for qualitative study;
- Exploratory: the results of the first method (qualitative) help to develop or form the basis of the second method (quantitative), for example to first explore new variables, theories and hypotheses, to develop an instrument or a typology that is not available or to assess whether qualitative themes can be generalized to a population.

Creswell and Plano Clark (2007) identified three questions linked to the choice of a mixed methods research design: the level of interaction between the quantitative and qualitative strands, the priority of the strands and their timing.

Regarding the integration of results from both methods, two main approaches are presented by Creswell and Plano Clark (2011). The first one is merging the data that are collected concurrently using either side-by-side comparison, joint display (i.e. a cross table) or data transformation (*quantitising* – data collected through qualitative methods, converted into numerical codes to be statistically analysed – or *qualitising* – data collected with a quantitative method, and converted into narrative data analysed

qualitatively). The second approach mentioned by Creswell and Plano Clark (2011) is connecting the data that are collected sequentially. One of the main issues when integrating results from both qualitative and quantitative methods is the possibility of discrepant results. Four strategies are then proposed in the literature to find a solution (Pluye et al. 2009):

- Reconciliation, when the data can be re-analysed and interpreted plausibly;
- “Bracketing”, which provides, when the results are irreconcilable, extreme cases to determine the image of a statistical confidence interval;
- Initiation of new perspectives from data analysis, a new research project or a new data collection based on a new research question;
- And exclusion, that is to say, the omission of part of the data, for example, if the results are incomplete or if some data are not sufficiently robust in terms of validity.

As a developing field, challenges are faced both by researchers and practitioners regarding epistemological foundations, technical issues and regarding skills, time or resources. Nevertheless, in this quite early stage of development, mixed methods, as a methodological tool, may help to resolve some of the issues related to the evaluation of school health promotion initiatives, especially with regard to appraising a complex phenomenon and providing different points of view about it. In the next section of this chapter, we will illustrate this potentiality by presenting how mixed methods were used to evaluate a health promotion initiative implemented in French primary schools.

18.3 Use of Mixed Methods in the Evaluation of a School Health Promotion Initiative – An Example from France

In this section, the French health promotion initiative studied, the evaluation framework and the evaluation design implemented are described and illustrated by some of the first results.

18.3.1 The Health Promotion Initiative Studied

The French system is national and centralised. Schools set a low priority on health promotion (Pommier et al. 2009). Professionals in the workplace are not always aware of their health promotion role (Jourdan et al. 2002). A health promotion initiative tailored to the French context was therefore developed to address health promotion issues within school settings and to equip school staff to implement health promotion policy. This initiative aimed to promote children’s social, emotional and physical health by contributing to their well-being at school (Samdal et al. 1998)

and enhancing their life skills (WHO 1993, 1999). Its objective was to encourage the development of sustainable health promotion projects in school settings by empowering local actors and by “mobilizing” existing resources. The main strategy was the development of teachers’ health promotion practices and a health promotion environment within schools. The initiative takes into account the most recent international publications and data concerning the development of school health promotion approaches (Tones and Tilford 2001; St Leger et al. 2007; Stewart-Brown 2006; St Leger and Young 2009). This implies the development of a progressive sustainable intervention:

- Taking into account the development of the children;
- Linking health to educational issues as well as integrating them into on-going school activities and existing policies;
- Communication with parents and communities;
- Training and support of school staff and accessibility of resources and other methodological tools.

It also takes into account the special features of the French system. The intervention is a combination of top-down and bottom-up approaches and therefore the characteristics of the actions implemented in each school may vary (Grieg Viig and Wold 2005).

Figure 18.1 presents the theory-of-change model underlying this health promotion intervention (Knowlton and Phillips 2009). It suggests that the strategies developed through the intervention (teacher training, school team support, resources and tools, and institutional lobbying) can positively influence teachers’ health promotion practices (Goigoux 2007) and the schools’ health promotion environment and enhance the well-being of both children and teachers, improve the relationship between schools and families (Hamel et al. 2001; Schoonbroodt and Gélinas 1996), develop children’s knowledge, attitudes and skills about health (WHO 1993) and eventually improve children’s social, emotional and physical health (WHO 1993). This model is based on the assumption that the outcomes and strategies interact with the general and local contextual factors and the way in which the intervention is implemented (i.e. rules, organizational structure and personnel who are responsible for managing the programme) (Chen and Rossi 1983).

A 4-year pilot study (2003–2007) was carried out in 21 schools (Mérini et al. 2009; Mérini et al. 2010; Simar and Jourdan 2010a; Simar and Jourdan 2010b; Simar and Jourdan 2011). During this pilot stage, there were in-depth interviews with the intervention designers and those involved locally, observations were made, documents were collected and questionnaires were filled in by children, teachers and parents. The initiative was then proposed in 2007 to all 31 French teacher training institutes. These institutions have the authority and legitimacy to sustain such research initiatives. Ten institutes in 10 different French regions agreed to participate. Six regions were able to gain institutional support and set up a regional team to implement the intervention and to collect data. Within those six regions, a total of 115 schools were given institutional support for participating and reaching out to

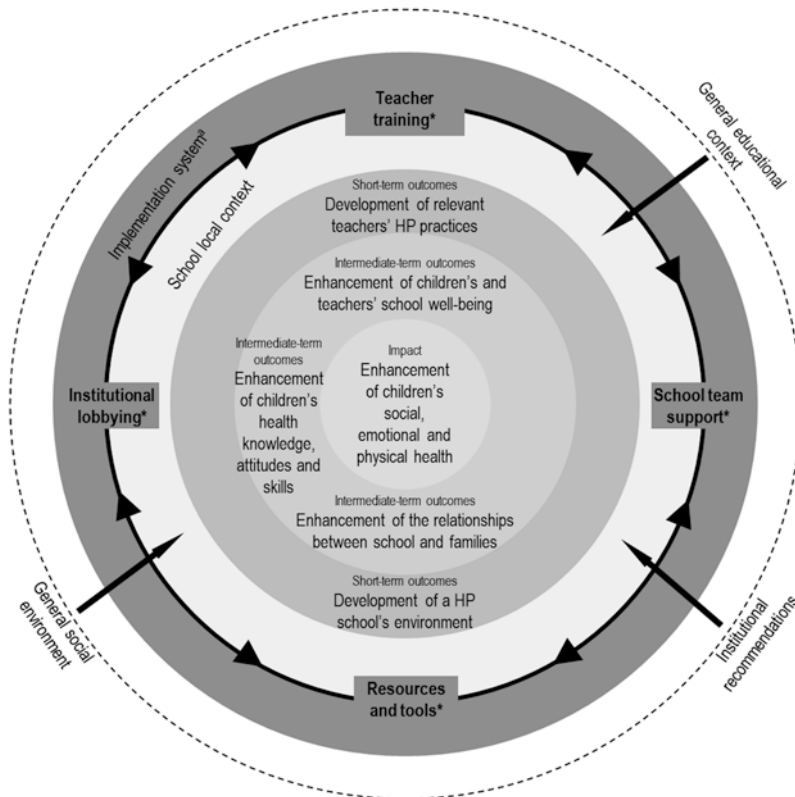


Fig. 18.1 Theory-of-change model of a health promotion intervention in a school setting – Extract from (Pommier et al. 2010). *Implementation system – an intervention once enacted must be carried out through an implementation system that includes rules, organizational structures and personnel who have been given the responsibility to administer the intervention (Chen and Rossi 1983). *Strategies; HP: health promoting

approximately 650 teachers and 11,000 children and their families. The implementation phase started in 2008 and lasted 3 years.

A national team, with two senior researchers and a coordinator, was in charge of coordinating both the implementation and the evaluation phases. In each region, a team was set up including teacher trainers, educational advisors, school nurses and doctors as well as members of local non-governmental health promotion organisations. The regional teams were assigned with five objectives:

1. Implement regional support services with representatives from the key institutions involved;
2. Develop training sessions for school staff;

3. Support schools in the implementation of health promotion projects within their community;
4. Provide teaching tools to schools; and
5. Develop local partnerships in communities to sustain the implementation of health promotion in schools.

These regional teams were trained for four days by the national team, prior to implementation. These sessions focused on how to deliver training, advice and support to school staff regarding the principles, values, resources and evaluation of the intervention. They then underwent two more days during the first year of implementation and one more day during the second and third years of implementation. These sessions focused on issues that were raised by the implementation in the schools (partnership development, school-family relationship, teaching tools, and conflict management). All training days were based on knowledge development and experience sharing on health promotion practices. One last day was organized at the end of the third year to assess the implementation process and share the first results of the evaluation. Throughout the implementation process, the national team also provided support to regional teams.

Based on this training and support, each regional team developed its own health promotion training and support intervention to be delivered in their own region taking into account local needs and resources. Each school received a set of teaching tools. Schools took part to the initiative on a voluntary basis.

The overall initiative was supervised by a scientific committee formed by health and educational experts and practitioners. An ethics committee was also created. The research project was registered at a national ethics committee (registered number 1332359). In each region, a regional steering committee was also set up including school board representatives, parent representatives, other regional relevant actors, and members of the regional team.

Figure 18.2 presents the implementation system of this initiative. It shows the different stakeholders involved at the national, regional and local levels, their role and the way they interact as well as the data collection for the follow up and evaluation.

18.3.2 The Evaluation Design – Using a Mixed Methods Approach

The evaluation framework chosen is based on the “theory-driven” approach to evaluation defined by Chen and Rossi (1983). This approach “is not the global conceptual scheme of the grand theorists, but more prosaic theories that are concerned with how human organizations work and how social problems are generated [...]. What we are strongly advocating is the necessity for theorizing, for constructing plausible and defensible models of how programmes can be expected to work before evaluating them” (Chen and Rossi 1983, p. 285).

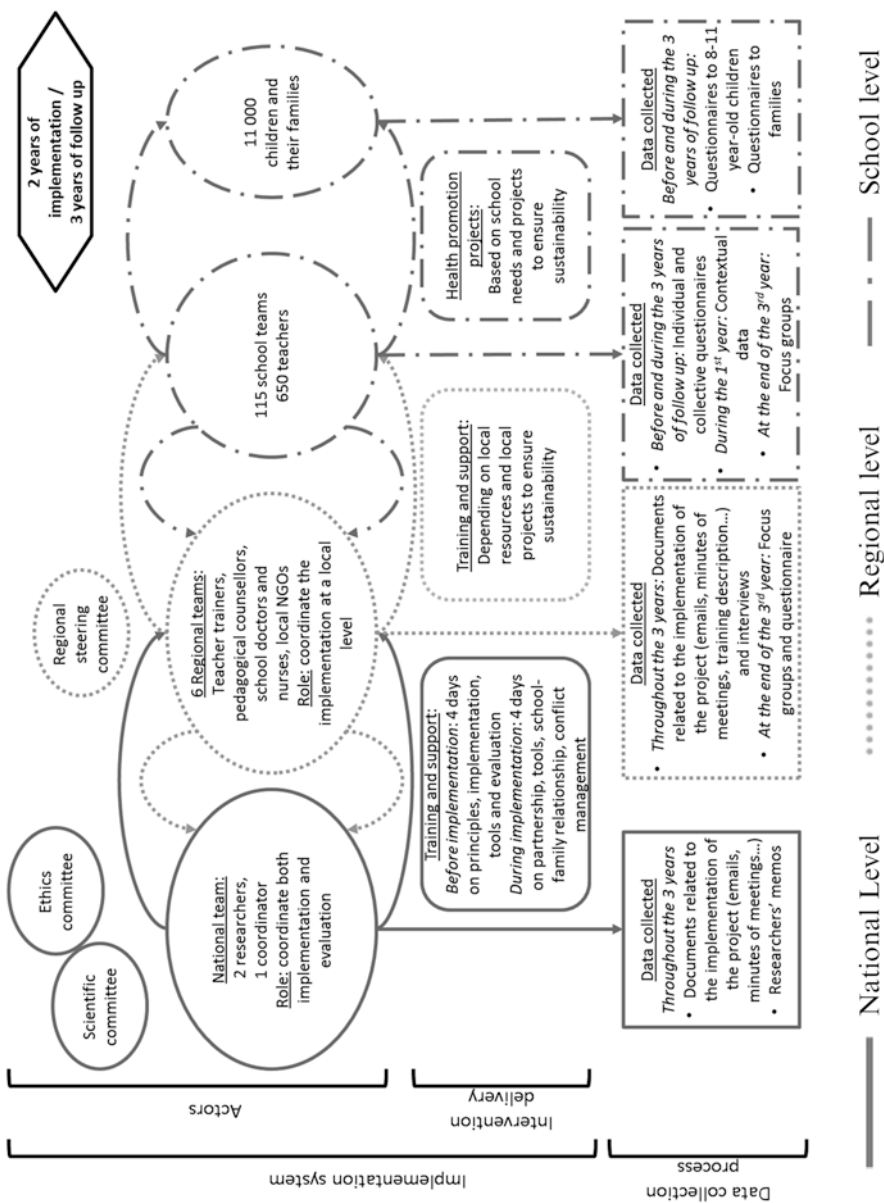


Fig. 18.2 Implementation system and data collection process

The evaluation of the French health promotion initiative described previously required both intensive and extensive information: intensive information is related to a need for stakeholders to have an in-depth understanding both of the context and of the activities implemented in order to better know what the ingredients are that support the development of school health promotion in the French context. As for the extensive information, the same stakeholders may need to know what the outcomes on children and families are. Thus, evaluation will be required to provide both types of information and in this case, the use of mixed methods is recommended (Chen 1997). In this section, the overall evaluation design implemented will first be described. We will then focus on three specific aspects to illustrate how both qualitative and quantitative approaches can be used.

18.3.2.1 An Overview of the Design Implemented

Two main sets of evaluation questions were raised:

1. What are the factors that allow the school community to develop a health promotion approach?
2. How do the strategies developed through the intervention influence the development of teachers' health promotion practices and the schools' health promotion environment? How do these practices affect well-being in the schools? What is the influence of the intervention on the children's perceived life skills?

According to the factors that influence the choice of a mixed methods design as defined by Creswell and Plano Clark (2007), the evaluation design implemented is based on an embedded design: QUAN(qual). The evaluation questions focus on quantitative data to measure changes and qualitative data plays a supportive role in exploring health promotion practices and contexts to better understand the QUAN data. Data are collected concurrently: quantitative numerical data are collected from questionnaires and forms and qualitative data (text data, transcripts and memos) from open-ended questions included in questionnaires, forms and from semi-directed interviews and focus groups. The data are analysed using quantitative (univariate, multivariate and multilevel analysis) and qualitative analysis (content analysis). In addition, qualitative data were *quantitised* – i.e. numerical conversion of qualitative codes (Tashakkori and Teddlie 2003) – in order to be included in the quantitative analysis. The interpretation is quantitative, qualitative and combined where the quantitative results are clarified by the qualitative results, in order to generalize the findings, predict and interpret theory. Figure 18.3 presents this mixed methods embedded design and summarizes the data collection and analysis procedures and products as well as the QUAN(qual) interpretation stage. Qualitative and quantitative methods are mixed throughout all phases of the project from the design stage through data collection to data interpretation.

Regarding data collection, Fig. 18.2 also shows the data collected at the national, regional, schools and children levels. At the national level, documents related to the implementation of the intervention and researchers' memos were collected over

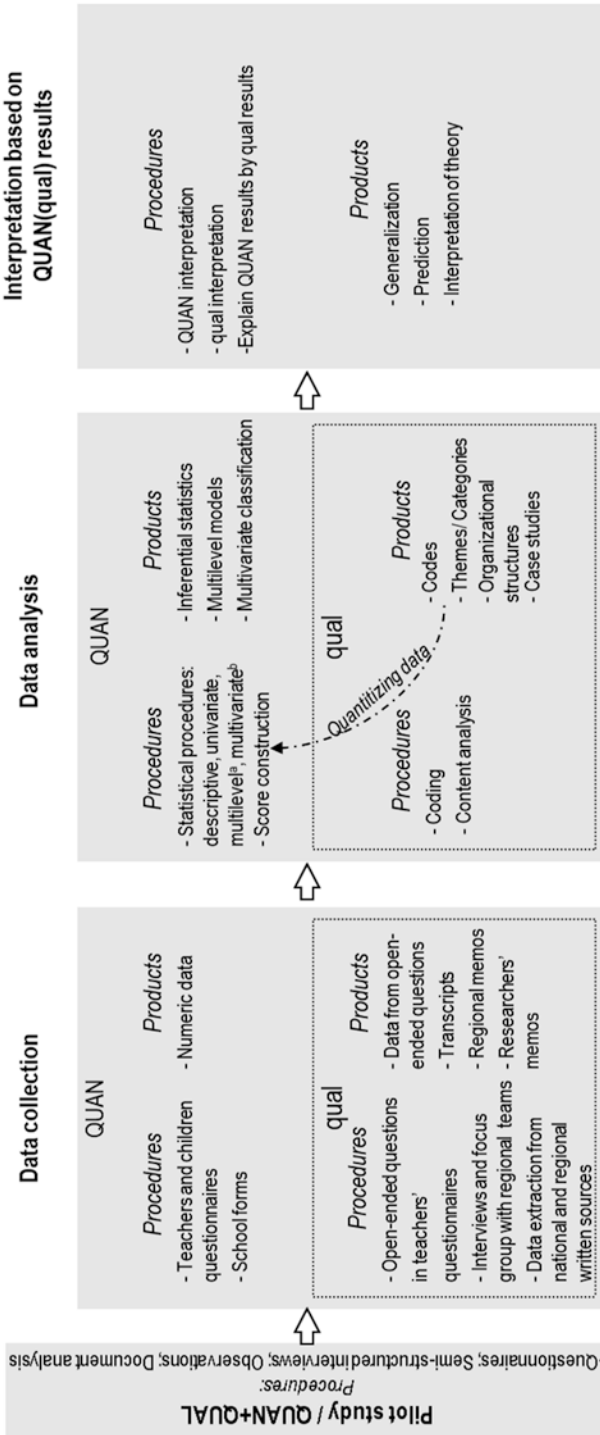


Fig. 18.3 Mixed methods embedded design of the research: data collection, analysis and interpretation procedures and products – Adapted from (Pommier et al. 2010)

QUAN: quantitative, qual: qualitative

^a: regression (logistic, linear...)

^b: principle component analysis, multiple correspondent analysis, classification

the 3 years. At the regional level, documents related to the implementation of the regional intervention were gathered during the 3 years and focus groups were organised with the regional teams at the end of the third year. Regional teams also filled in a questionnaire to describe how each school received the intervention. At the school level, individual and collective questionnaires were filled in by teachers and school teams. Contextual data were gathered on school context (i.e. size of the school, number of teachers, of pupils, socio-demographic data, etc.). Focus groups were also organised with selected school teams during the last year of follow up. Children from 8 to 11 years old filled in questionnaires focusing on their perception of their life in their school and of their life skills. Parents were also invited to fill in a questionnaire on how they perceived the life in their children's school, their relationships with it and their involvement in the school's activities. These questionnaires were collected from parents and children in a 3 year multiple time series design, at the beginning of the intervention and at the end of each school year.

The results of each questionnaire were returned to schools once a year. A specific user-friendly document was created and validated by those involved and the results were communicated to school communities by the regional teams to contribute to the development of health promotion projects at the school level.

18.3.2.2 Examples of How Mixed Methods Were Used and Results

To illustrate concretely the implementation of this evaluation design and the kind of results we can obtain, we will focus on three examples. The first is linked to the factors and their interactions that may influence the regional teams in implementing sustainable health promotion interventions for school staff and communities. The second is in relation to its impact on teachers' health promotion practices. The third is linked to the factors that may influence how children perceived their school social environment. The first example is based on a qualitative approach followed by *quantitisation* and the next two examples are based on quantitative approaches completed by qualitative data sources.

A Qualitative Approach Followed by Quantitisation to Study Factors Influencing Regional Teams in the Implementation of Sustainable Health Promotion Interventions

This part of the study is mainly qualitative and aims at identifying key factors that may influence the regional teams in implementing a sustainable health promotion intervention for school staff and communities. Once these factors identified, they were *quantitised* in order to be integrated into following statistical analysis.

a) Methodological Aspects

The specific design implemented for this study is divided into four stages based on the realist evaluation cycle suggested by Pawson and Tilley (see Box 18.1). The first stage

Box 18.1: The Realistic Evaluation Framework

The realistic evaluation framework was developed by Pawson and Tilley (1997). This is a framework that takes into account the complexity of social interventions in specific contexts focusing on how they work, for whom and under what circumstances. It aims: (1) to understand the mechanisms through which health promotion interventions produce change; (2) to understand the contextual conditions necessary to trigger these mechanisms; and (3) to develop outcome pattern predictions according to the context and mechanisms triggered. These are the three guiding themes of the research strategy defined by Pawson and Tilley. According to these authors, in a realistic evaluation approach, the outcomes of a health promotion programme are explained by the action of specific mechanisms in specific contexts. It is thus essential in this type of evaluation approach to identify the mechanisms involved, i.e. what, within the programme, produces change. The idea is to determine “which individuals, subgroups and locations might benefit most readily from the programme, and which social and cultural resources are necessary to sustain the changes” (Pawson and Tilley 1997, p. 85). They name these configurations “context-mechanism-outcome pattern configurations” (CMO configurations). Realistic evaluators can then identify, modify, test and refine the CMO configurations. For these authors, a mechanism is “not a variable but an *account* of the make-up, behaviour and interrelationships” of the processes which are responsible for the change, “a mechanism is thus a theory” (Pawson and Tilley 1997, p. 68). CMO configurations are developed both on the basis of the literature and using the point of view of the stakeholders/participants of the intervention who play a key role in confirming, refuting or refining the theory. The realistic evaluation framework does not require the use of a specific method. Indeed, Pawson and Tilley (1997) acknowledge that, when it comes to the choice of method, realistic evaluation can be based on methodological pluralism and thus on both qualitative and quantitative approaches.

aims at identifying contexts and potential mechanisms in literature. The second stage aims at organising them for use as a starting point for the analysis of the empirical data collected at the regional level – interviews, focus groups with regional teams and data from national and regional written sources, i.e. emails, minutes of meetings, training description, etc. (see Fig. 18.2) – within the third stage. Each specific context, mechanism and outcome was then transformed into variables and *quantitised* for each region in order to integrate them into following statistical analysis. For example, a numerical value was assigned to each mechanism according to its degree of activation in each region. Finally, based on a transversal qualitative analysis (i.e. comparing the six regions considering them as six different contexts) of the contexts, mechanisms and outcomes identified, stage four aims at proposing a “context-mechanism-outcome pattern configurations” that outlines the main elements that may influence the development of health promotion interventions based on training and support for schools (Guével et al. 2013a).

b) Main Results

The “context-mechanism-outcome pattern configurations” proposed outlines the main elements that may influence the development of health promotion interventions based on training and support for school staff.

To achieve this outcome, according to the results of this study, the following contexts and their interactions need to be taken into account:

- A high local commitment, especially from the head of the department of education as well as from the municipalities;
- A stable regional team able to train and support schools;
- A stable district and school organization;
- Regional teams that are trained and supported.

The results also show the key mechanisms triggered:

- At an individual level of the regional team members: knowledge development on school health promotion approaches, improvement of self-efficacy regarding the implementation of such approaches, development of a reflective practitioner perspective in this area, and development of their motivation and of their conviction regarding the values promoted;
- At an inter-individual level: development of opportunities to exchange with peers, shared values and knowledge within and between the regional teams;
- At a collective level: development of partnership inside and outside the educational department.

A Quantitative Approach Completed by Qualitative Data Sources

Two examples are given, one at the teacher level, focusing on teachers’ self-reported health promotion practices and another one at children level, focusing on how children perceived their school social environment. Both examples are based on a quantitative approach completed by qualitative data sources.

a) Teachers’ Self-Reported Health Promotion Practices

This part of the study mainly uses a quantitative approach and aims at assessing the impact of the intervention on teachers’ health promotion practices. Open-ended questions were used to describe the different themes addressed by teachers and the way they have done it. The next stage of analysis will lead us to integrate in multilevel analysis quantitative data from the teacher’s questionnaire as well as qualitative data that would have been *quantitised* both from the teachers’ questionnaire (i.e. from open-ended questions) and from the qualitative analyse carried out at the regional level in order to better take into account the specificity of the teachers’ regional context.

i) Methodological Aspects

A questionnaire was designed to collect data on teachers' attitudes to health promotion, on their own practices and factors that might influence them (facilitators, barriers, etc.), on their motivation, interest in health promotion and perceived self-efficacy in health promotion, as well as on their perception of the life in their school (school climate, perceived violence, etc.). This questionnaire was primarily developed in 1991 in a study on teachers' practices and attitudes to health promotion (Jourdan et al. 2002); it was amended and used in the pilot study. Both closed- and open-ended questions were used.

Initially, 115 schools were involved, however at the end of the first year; our population was reduced to 100 schools for various reasons. The participating schools were divided into two groups: the first group (group 1) received training and support from the first year, the second group (group 2) received training and support from the second year. Group 1 consists of 62 schools and group 2 of 38 schools. This difference between the two groups can be explained by the fact that most of the schools that left the project were part of this group 2. In addition, initially, the regional teams had encountered difficulties in recruiting schools agreeing to take part in the evaluation design from the first year and receive training and support only from the second year. However, the two groups are not significantly different in terms of size, geographical location, socioeconomic status and average number of teachers per school (Table 18.1).

A first set of analysis was carried out on the data collected before the implementation (Guével et al. 2010). A second set of analysis was carried out after 1 year of implementation, i.e. after 1 year of training and support for schools in group 1 and before group 2 starts to receive training and support. In this set of analysis, answers from the two groups were compared in order to identify on which aspects, training and support may have had an influence. In the first place, teachers' questionnaires were analysed about whether teachers reported having health promotion practices and about their perception of the climate in their school.

Table 18.1 Schools' characteristics and comparison between the two groups of schools

Schools' characteristics		Total % (n)	Group 1 % (n)	Group 2 % (n)	Group 1/ Group 2 ^a
Size	Small (≤ 3 classes)	35 (35)	35 (22)	34 (13)	ns
	Medium (4–7 classes)	53 (53)	55 (34)	50 (19)	
	High (≥ 8 classes)	12 (12)	10 (6)	16 (6)	
Location	Rural	38 (38)	42 (26)	32 (12)	ns
	Urban	62 (62)	58 (36)	68 (26)	
Socio-economic status	Privileged	24 (24)	26 (16)	21 (8)	ns
	Medium	37 (37)	34 (21)	42 (16)	
	Underprivileged	39 (39)	40 (25)	37 (14)	
Mean number of teachers per school (mean \pm sd)		5.72 \pm 3.09	5.34 \pm 2.80	6.34 \pm 3.45	ns

^aMean test or chi-squared test, significance was set at $p < 0.05$. ns non-significant

Qualitative data coming from the regional focus groups as well as from the written sources collected have been content analysed and then transformed into quantitative data that will be integrated into the quantitative database. Furthermore, in the teachers' questionnaires, the open-ended questions concerning teachers' attitudes to health promotion and the activities they have implemented will be *quantitised* for the quantitative analysis.

ii) Main Results

Three hundred and nineteen teachers responded and were included in the first set of analysis (response rate of 54.5 %). Seventy-one per cent of teachers reported having implemented health promotion activities during the previous school year. According to the content analysis of open-ended questions, these activities were mainly related to health topics (nutrition, hygiene and dental health), to citizenship, community and environmental issues. Physical education as well as arts disciplines were most frequently cited as media. The four main factors cited by teachers as influencing their practices in health promotion were their own interest (63 %), the school syllabus and the collective reflection at the school level (60 %), the fact that health promotion is part of their mission (58 %) and the school climate (39 %). Eighty-five per cent of teachers declared working with partners: their fellow teachers (61 %), other members of the school team (23 %), associations (23 %) and families (21 %). The four main difficulties encountered by these teachers were the lack of time (43 %), the lack of training (30 %), material issues for organizing activities (29 %) and the lack of tools (23 %). Of the 29 % of teachers who reported not having implemented health promotion activities, 56 % of them reported having done it in the past. The main obstacles encountered were the lack of training (45 %), the lack of time (44 %), the lack of tools (36 %) and the lack of experience (32 %).

For the second set of analysis, at the end of the first year of implementation, 168 teachers returned their questionnaire (response rate: 30.1 %). Teachers from group 1 have had implemented more health promotion activities than teachers from group 2 (88 % vs. 74 %, $p=0.0281$). Regarding how much thought was put into the issue of implementing health promotion activities, teachers from group 1 appeared to be more advanced in their reflection ($p=0.0025$). As Fig. 18.4 shows, 66 % of teachers from group 1 reported to be at stage 1 (considered to be the highest).

Teachers from group 1 seemed to have a more positive perception of the life in their school than those from group 2, especially regarding the atmosphere among pupils ($p=0.0341$), the relationship between pupils and teachers ($p=0.0191$), the relationships with parents ($p=0.0031$), the relationship between adults ($p=0.0107$) and the violence perceived ($p < 0.0001$). Figure 18.5 shows the percentage of teachers in each group who selected the modality "Very good" for the first four proposals mentioned above and the modality "Not at all" for the proposal on perceived violence.

b) School Evolution Based on Children's Perception of Their Life at School

This part of the study aims at studying how schools benefit from the intervention from the children's point of view. It is based on the evolution of children's perception of their life at school. The approach used is mainly quantitative. In the next stage of

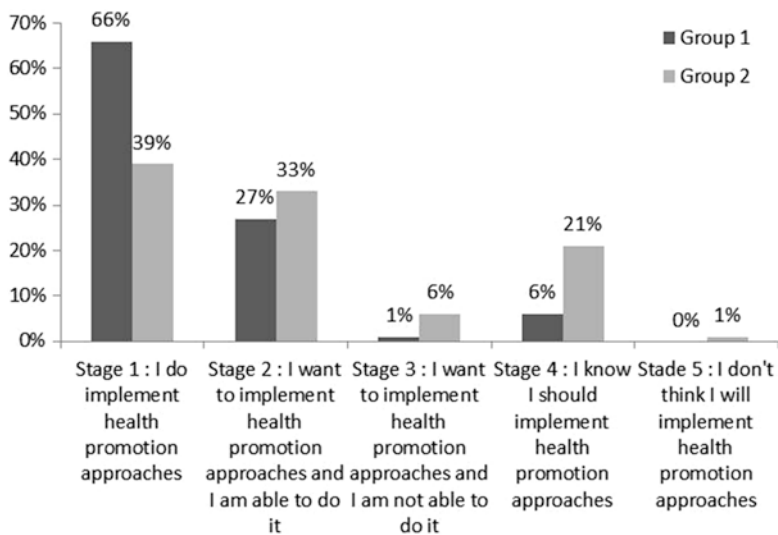


Fig. 18.4 Teachers' distribution according to their stage of reflection regarding health promotion approaches

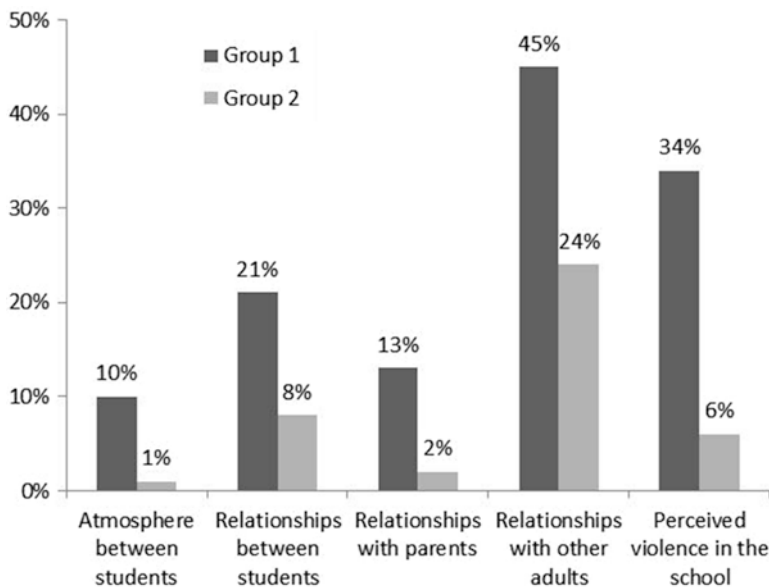


Fig. 18.5 Percentage of teachers that chose the highest modality regarding their perception of the life in their school

analysis, *quantitised* data from the qualitative analyse carried out at the regional level as well as data from teachers' and school teams' questionnaires will be integrated in order to better take into account the specificity of the school context.

i) Methodological Aspects

Data were collected from 8 to 11 year-old children before the implementation of the intervention, 1 and 2 years after the beginning of the implementation. To be included elementary schools (i.e. schools with children between 8 and 11 years of age) needed to have returned questionnaires at least twice. In the end, 45 schools were included in this sub-study, representing approximately 3,500 children.

A children's questionnaire was designed to collect data on children's perception of their life in school and life skills (WHO 1999). Children's perception of their life at school was studied through questions on the school climate and on their perception of their relationship with other children, teachers and adults working in the school. This part of the questionnaire was based on the questionnaire developed by Debarbieux at the European observatory of school violence (Debarbieux 1996; Debarbieux and Blaya 2001) which was adapted and used in the pilot study (Younès et al. 2011).

Three indicators were developed and their evolution through the implementation of the intervention was studied: *Perceived violence* (score of four variables, Cronbach alpha=0.64), *Perceived relationships with others* (score of eight variables, Cronbach alpha=0.74) and the variable *Feeling at school*.

In the first place, mean and Kruskal-Wallis tests were carried out as well as multiple correspondence analysis and hierarchical clustering on principal components (Escofier and Pagès 2008).

ii) Main Results

Table 18.2 presents the results for these three indicators before the implementation of the intervention, 1 and 2 years after the beginning of it. *Perceived violence* is relatively low; through the three-time data collection, the average is a little more than 4 out of 12, i.e. children perceived little violence in their schools. Throughout the implementation, this score slightly increased (from 4.31 to 4.39, i.e. perceived violence is higher) but it is not statistically significant. *Perceived relationships with others* is high with an average over 15 (out of 21) through the three times of data collection i.e. children had a quite good perception of their relationships with others in their school. Throughout the implementation, this score slightly decreased (from 16.10 to 15.82) but it is not statistically significant. Finally, children tend to feel well or very well at school. Even if, throughout the implementation, children feel a little less well at school as this variable goes up from 1.67 to 1.78 where 1 means *children feel very well at school* and 2 means *children feel well at school* ($p=0.0184$).

Following multiple correspondence analysis and hierarchical clustering on principal components analysis, four school profiles emerged reflecting how children's perceptions of their social environment at school may evolve during the implementation of the intervention in their school:

- First profile – “No change”: *Perceived relationships with others* and *Perceived violence* have not changed through the implementation. *Perceived violence* was below average before the implementation (20 schools out 45).

Table 18.2 Descriptive results regarding the indicators of children's perception of school before the implementation of the project in schools, 1 and 2 years after the beginning of the implementation

		Mean	SD	Min.	Max.	Comp. ^a
<i>Perceived violence</i>	Before the implementation	4.31	0.86	2.41	6.18	ns
	A year after the beginning of the implementation	4.64	0.89	3.00	6.56	
	Two years after the beginning of the implementation	4.39	1.04	1.64	7.00	
<i>Perceived relationships with others</i>	Before the implementation	16.10	1.04	12.63	18.00	ns
	A year after the beginning of the implementation	15.89	1.11	12.82	17.59	
	Two years after the beginning of the implementation	15.82	1.01	13.75	17.70	
<i>Feeling at school</i>	Before the implementation	1.67	0.21	1.41	2.40	p=0.0184
	A year after the beginning of the implementation	1.76	0.30	1.13	2.71	
	Two years after the beginning of the implementation	1.78	0.21	1.27	2.20	

SD standard-deviation, *Min.* minimum, *Max.* maximum, *Comp.* comparison within the three data collection time points

^aMean or Kruskal-Wallis tests, significance was set at $p < 0.05$. *ns* non-significant

- Second profile – “*No change with a good situation throughout the implementation*”: *Perceived relationships with others* was above average before the implementation. *Perceived relationships with others* and *Perceived violence* were above average after the implementation (12 schools out 45).
- Third profile – “*Decreased*”: *Perceived relationships with others*, *Perceived violence* and *Feeling at school* have decreased through the implementation. *Feeling at school* was below average after the implementation (9 schools out 45).
- Fourth profile – “*Good situation at the end of the implementation*”: *Perceived relationships with others*, *Perceived violence* and *Feeling at school* were above average after the implementation. Values are missing regarding the evolution of the indicators (4 schools out 45).

This classification illustrates that from the children's point of view, schools may evolve in different manners: some positively (i.e. they have higher score than average) and some negatively (i.e. their scores decreased during the implementation phase). These results will be further explored to identify the school and regional contextual factors – such as at the regional level, the support from the community or from regional institutions; at the school level, its size and location as well as its degree of involvement in health promotion and at the classroom level, teachers' collective and individual health promotion practices – that may explain why we observed some schools with a positive evolution and others with a negative one. These analyses are currently underway (Guével et al. 2013b).

18.4 Concluding Comments Regarding Mixed Methods and School Health Promotion Evaluation

This chapter was focused on the mixed methods contribution to the development of school health promotion. Empirical data gathered from a study implemented in the French context were used to highlight the interest of such a research strategy (Creswell 2009). In this concluding paragraph, we would like to summarize the key contributions of mixed methods regarding the sustainability and transferability of school health promotion and the necessity of addressing the different types of evidence that can be produced to ensure successful implementation and sustainability.

In her literature review, Stewart-Brown (2006) stated “It is becoming increasingly clear that research on promoting health requires a variety of methodological approaches, including process- and outcome-based evaluation, and quantitative and qualitative methods.” (Stewart-Brown 2006, p. 16) In combining both approaches, mixed methods offer a framework to think and to carry out evaluation designs. Such designs could potentially propose an answer to these challenges in order to improve the sustainability of health promotion initiatives by identifying the key factors linked with the efficacy of an intervention (both its success and its sustainability). They may also help in identifying the factors related to the transferability of an intervention from one context to another by taking into account qualitative data that might explain why a same intervention may work in one setting and not in another one. As illustrated in this chapter, work is still ongoing to improve the integration of the results of both approaches. As mentioned mixed methods is a research strategy currently under-development; however regarding school health promotion evaluation, mixed methods may help to take into account the complexity of the initiatives carried out (by providing different points of view) as well as to face challenges both from educational and health sectors (by providing evidence that might be acceptable for both sectors). For example, the possibility of thoroughly exploring the regional context in France with a qualitative approach and then, of integrating the key factors identified into a quantitative analysis in order to explain the factors influencing teachers’ health promotion practices is an important contribution to a better understanding of how school health promotion can be developed in France. Both results from the qualitative component and from the quantitative analysis will be valuable for French practitioners and decision-makers that wish to support school health promotion in their own context.

Moreover, mixed methods encourage the use of multiple sources of information that provide a more comprehensive understanding of the processes underlying the development of health promotion approaches in the school setting. In the example presented above, this was facilitated through a close partnership between researchers and practitioners: practitioners were involved since the beginning and participated in the construction of the initiative; moreover, data collected at both levels were included to have a more complete picture of the implementation. The aim was also to better secure the sustainability of the project once the research is over.

To go further, this type of design leads us to a broader discussion on the nature of the evidence in the field of school health promotion. Indeed in the first chapter of

his book, Donaldson sets out his framework stating that there are many ways to establish what is required for evidence to be judged credible in an evidence based global society (Donaldson 2009). Julnes' put the emphasize on "actionable" rather than "best" evidence within a context (Julnes and Rog 2009). Based on Donaldson's and Julnes' work, three sources of evidence can be identified and applied to the field of health promotion: scientific evidence (outcome based evidence), "professional" contextual evidence (practice based evidence) and "critical" review, i.e. an ethical approach of the intervention. Mixed methods by its ability to provide different perspectives on a same phenomenon and to take into account its complexity can contribute to the production of credible evidence related to philosophy, theory and practice in the evaluation context (Mertens and Hesse-Biber 2013). Therefore, their use has the potential to lead to a better understanding of health promotion initiatives and eventually to their strengthening.

This last point is essential when thinking about the transferability of school health promotion initiatives from one context to another, even within a same country; as our example has shown, outcomes may differ from one region to another and even from one school to another. The methodology for producing transferable knowledge is then of importance and some authors argue to focus on different modes of complementary or integrative studies combining qualitative and quantitative methods (Cambon et al. 2012). To be concrete, for example, if other French schools inspectors or educational advisors or school nurses or doctors or any other decision-makers wish to support the development of school health promotion, they could gain a better understanding of the initiative and how it might produce the desired outcomes in a specific context. The possibility of capturing both intensive and extensive information by using mixed methods in the evaluation design is therefore an important added-value to the evidence produce and to the possibility of using this evidence to invent new initiatives in new context.

Mixed methods have already a great potential to help address the challenges faced by the field of school health promotion especially those related to evaluation, sustainability and transferability, what we have tried to point out in this chapter.

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