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Development of a community-specific health promotion plan to improve children's health in rural Guatemala

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Abstract

The WHO Health Promoting School (HPS) approach embraces a comprehensive, integrated construct of a health promotion strategy aimed at the specific participation of the local school, health services and other stakeholders. The objective of this study was to initiate the development of a community-specific health promotion plan for the primary school in Llano Largo to reduce hygiene- and sanitation-related health problems among children. Participatory Rural Appraisal (PRA) techniques and Argumentative Policy Analysis (APA) were applied to assess the underlying causes of health-related problems and to initiate the process of social learning among stakeholders, including parents, teachers, the village committee and representatives from the local hospital, local NGO, local government, and the village church. Stakeholders defined five core problems: 1) serious lack of hygiene; 2) no doctor and a lack of medicines; 3) hunger and malnutrition; 4) absence in school as a result of child labor; and 5) no discipline in school. Lack of communication, organization and education seem to be the underlying causes of these problems. In line with the HPS concept, a community-specific health promotion plan was constructed. A ''Social Communication Work Group'' was elected to execute the plan. In conclusion, PRA and APA techniques were successful to implement a HPS plan in Llano Largo. Follow-up studies should determine the long-term efficacy of the plan.

Keywords: Argumentative Policy Analysis; child health; health promotion; rural health; technology assessment.

Introduction

Guatemala suffers the highest under 5 years child mortality in Central America (1). Hygiene-related interventions and education are effective in reducing child mortality. For example, evidence on the positive effect of hand-washing on diarrhea rates in children is abundant. A systematic review and meta-analysis summarizing data on water, sanitation and hygiene interventions by Fewtrell et al. (2) confirmed that hand-washing interventions are effective for reducing the frequency of diarrhea and disease. Water-supply interventions and water-quality interventions are also effective in reducing diarrhea rates. For example, flocculant-disinfectant can reduce the number of diarrheal episodes in children under 5 years of age by 50% (3).

School health promotion on potential health risks can lead to positive changes in health-related behavior. However, the need for an intersectoral approach to establish collaboration on communication between different stakeholders, particularly the local population, is an important factor determining the success rate of an educational program (4–7). The World Health Organisation's ''Health Promoting School'' provides the tools for an organizational and structural systematic approach to improve school health, which, in turn, increases the learning capacity of students (8).

The health promoting school (HPS)

Instead of classroom-based health education, the HPS approach is a more comprehensive, integrated method in which children and their environment are the main focus (8, 9). The HPS program is a WHO initiative laid down in the declaration of the Alma Ata of 1978 titled ''Health for All by the Year 2000'' (8, 10). The HPS program is closely linked to the UNESCO world declaration ''Education for All'', which states that everybody should be able to benefit from educational opportunities designed to meet their basic learning needs (10). The HPS model includes four components which together form the main focus of the HPS to improve quality of life and promoting health and well-being in children:

- The formal school curriculum. An HPS integrates teaching of Health and Physical Education across the curriculum to develop health literacy and health skills.
- The social and physical environment of the school (the school ethos). The school environment should be conducive to learning for both students and staff.
- Links between school, home and community. The central role of parents and guardians to support learning and their influence upon school policies and procedures is of great importance in an HPS.
- Health and welfare services. These provide health information and regular check-ups for support.

The literature describes several techniques in which the community is strongly involved, including Participatory

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Rural Appraisal (PRA) (11, 12) and Argumentative Policy Analysis (APA) (7).

Participatory Rural Appraisal

In PRA, a bottom-up approach can be accomplished in which the rural people (with the necessary knowledge and skills to be partners in the development of the project) are the main actors (13). PRA has proven to be an effective tool to guide development, local adaptation, and implementation of a variety of community level interventions (14). Also, PRA is a good framework to assess, analyze and develop programs in which community involvement is promoted. For example, in a study conducted in Pakistan, PRA helped to identify health problems considered prevalent and important by the community and empowered the community members as it facilitated community involvement (12). PRA consists of several subsequent stages which are summarized in Table 1.

Argumentative Policy Analysis

The basic assumption of APA is that successful implementation of policy requires the cooperation of the target populations (7). The purpose of APA is to collect available evidence to help policy makers, clinicians and patients understand the relative value of (health) technologies (14). Cooperation in the target group can be achieved through social learning to establish the desirable course of action (15). Wenger et al. (16) defines social learning as the dynamic interplay between social competence and personal experience: a two-way relationship between people and the social learning systems in which they participate. APA embraces a set of elements to determine a respondent's view:

- Judgment of proposed solutions (is the proposed solution safe and efficient?)
- Problem definitions (how does the particular stakeholder define the problem in terms of its mayor causes?)
- Background theories (this is the generic situation, this can be empirical as well as normative)
- Normative preferences (what is important, acceptable and desirable?).

These interrelated elements together embody the interpretative frame of each stakeholder (15, 17).

Health promotion in Guatemala

For two decades Guatemala has had the highest Central American mortality rate for children under 5 years old (1). This is mostly as a result of acute respiratory infections, intestinal infections with diarrhea symptoms and malnutrition. Although the 1990 mortality rate (82 deaths per 1000 live births) dropped to 39 deaths per 1000 live births in 2007, these rates are still very high when compared with developed countries. For example, the mortality rate in the USA was 8 per 1000 live births in 2007 (1).

Therefore, the objective of this study was to initiate the development of a new, community-specific, appropriate health promotion plan based on the HPS concept, for the primary school in Llano Largo, Guatemala, to reduce health problems in infants and children related to hygiene and sanitation. PRA and APA are expected to be effective tools to meet this objective.

Methods

The study was performed in Llano Largo, a small village in rural Guatemala. Since December 2007 the water pipe system is out of order and people use river water for their living. Diarrhea in children is reported frequently, and sometimes results in dehydration and even death. There is a primary school in the village; however, the school does not meet the HPS concept. Table 2 summarizes the village characteristics of Llano Largo.

PRA and APA were selected for this study with the aim of initiating a community-specific health promotion plan that is based on this HPS concept. PRA and APA were combined in this study because they are expected to complement each other. The study design followed the first five phases of PRA, applying APA in the third phase. Phases six to eight of the PRA were not applied in this study because the objective encompasses merely the development of a health promotion plan. Implementation, evaluation and ending of the project did not fit in the time frame of this research. Table 3 is a methodological timeline of all techniques applied throughout this study, which will be described in this section, per phase of PRA.

Table 1 Stages of Participatory Rural Appraisal (PRA). Adapted from Gerster-Bentaya (13).

1) *Rapport formation.* In this phase, a relationship with the villagers will be formed in which they feel more comfortable with the facilitator.
2) *Understanding.* A two-sided understanding is very important to be able to go on with the PRA method. The problem from the perspective of the villagers needs to be understood and the villagers need to understand the researchers' purpose.
3) *Reframing.* In this phase, the researcher is a critical partner in reflecting the situation and problem, with the purpose to encourage the participants to see the problem from a perspective that makes its management possible.
4) *Solution.* The objective of this phase is to identify a type of solution. The participants need to be committed to this particular type of solution to be able to go to the next phase.
5) *Solution planning.* The identified solution will be planned and seen through to a successful conclusion. The actors' developments have to express their commitment to the solution.
6) *Implementation.* The generated plan will be executed, in which the facilitator is the motivator.
7) *Evaluation and adjustment.* If the implementation has been completed or reached an impasse, it is time to evaluate or adjust the plan where necessary.
8) *Ending and consolidation.* Main goal of this stage is to help the target group to consolidate the problem solving skills they have taken up during the process.

Table 2 Village characteristics of Llano Largo.

Population	Approximately 1000 inhabitants, approximately 250 households
Religion	98% Catholic
Language	Spanish
Main source of income	Agriculture
Literacy	Approximately 60% among adults, approximately 80% among children
Season at time of research	Dry season
Social services	Primary school, secondary school, Catholic Church, local hospital (unequipped), bar, eight little food shops (seven of them dominated by unhealthy food and fizzy drinks, one of them additionally sells vegetables).
Main health problems	Intestinal infections and diarrhea, pulmonary problems, flu, skin infections, eye problems and rotten teeth
Geographical location	Isolated, located in the mountains; for health services a 50-min bus ride is required
Building material	Mostly loam, also wooden sticks and concrete (most of the concrete houses are built around 2004 with help from the local government, for the poorest)
Roads	Dirt roads of sand and rocks, most of them impassable for cars; parts of roads are from concrete (unfinished); steep slopes
Water services	None; local river stream used for drinking, washing, laundry and sanitation
Sewage system	None; local river stream used for disposal of bodily waste
Garbage system	None; garbage is burnt or thrown in the river, woods or on the streets
Sanitation	Most households have latrines, some houses have no sanitation
Animals	All owned by villagers, although dogs walk around freely in and out of the house
Procedure of disposal of dead animals	Disposed of in the river or in the woods
Primary school	Eight teachers for approximately 300 children. Broken windows, toilets dirty and out of order. Unused kitchen. Children clean the school with river water. No structured health education, no communication with other stakeholders (parents, local hospital)

The participants of this study were selected according to their stake and influence in child health. The following stakeholders have been approached for participation in this study: mothers, fathers, teachers of the primary school (including the director), members of the village committee (the local leaders of the village), the mayor of the village, the director of a Guatemalan non-profit organization, the priest and a representative of the local Catholic Church and the director of the local hospital in San Antonio, a small town 16 km from Llano Largo.

Rapport formation and understanding are the first two PRA stages. The stages comprised guided tours through the village (to get to know the village and familiarize with its inhabitants) and village mapping. Members of the village committee were invited to draw the village map. They were asked to draw the houses and roads of the village as well as the local river and other detailed information concerning the village. For example, they were asked to indicate where people wash themselves and their laundry and the degree of contamination of the river in different places, and to indicate with colors the material of the houses: wood, loam or stone. They were also asked to indicate the number of children under 5 years of age per household as well as the number of children that died per household. During village mapping, committee members were asked to talk about the main problems of the village. Also demographic information was collected. To gain mutual trust among villagers and the researcher, the priest announced the research during a mass that was attended by the vast majority of villagers.

Reframing: the first argumentative circle

The reframing phase was performed applying APA. Two subsequent argumentative circles were conducted. In the first circle, semi-structured interviews were held with all stakeholders. Participants were selected using the village map. The researcher approached every 10th household for an interview until saturation in gathered information was achieved. To be included, households should have at least one child under 5 years of age and/or at least one child attending primary school.

Settings of the interviews

Most participants were interviewed in the safety of their own homes, to create a well-known, natural and relaxed situation and to increase the respondent's feelings of comfort. With the same goal, the researcher spoke in the respondent's own language, Spanish. Before getting started, the participant was informed of the purpose of the interview and the study. Also, the participant was ensured that all data gathered would be treated anonymously throughout and after the study, to reduce possible response bias and socially desirable answering. A voice recorder was used (necessary for transcribing) only after approval of the participant. Interviews started with a general question (e.g., for mothers: ''what does a typical day in your life as a mother look like?'') to then continue the conversation concentrating on specific ''markers'' in the respondent's answer to disentangle the deeper causes of the problems and underlying norms and values.

Transcribing and analysis

Spanish conversations were transcribed into English and interpretative frames of stakeholder groups were constructed. From these interpretative frames, five mind maps were constructed of the five most mentioned health-related problems, their causes and proposed

Table 3 Timeline of techniques applied throughout the study.

<table>
<tr><td>Activity / Week</td><td colspan="2">1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14+</td></tr>
<tr><td>PRA phase</td><td>1</td><td>2</td><td colspan="11">3</td><td>4</td><td>5</td></tr>
<tr><td>APA phase</td><td colspan="2"></td><td colspan="6">First argumentative circle</td><td colspan="5">Second argumentative circle</td><td colspan="2"></td></tr>
<tr><td>Activities</td><td>Guided tours SDO</td><td>Village map</td><td colspan="6">Semi-structured interviews</td><td colspan="5">Meetings</td><td>General meeting</td><td></td></tr>
<tr><td>Observations</td><td colspan="2" rowspan="6"></td><td colspan="6">Participant observation</td><td colspan="5">Observation of group dynamics</td><td colspan="2" rowspan="2"></td></tr>
<tr><td>Analysis</td><td colspan="6">Transcription interviews</td><td colspan="5">Construct summaries</td></tr>
<tr><td></td><td colspan="5" rowspan="3">Reconstruction interpretative frames of first argumentative circle</td><td colspan="4">Ranking of perceived importance</td><td colspan="2" rowspan="3">Comparison interpretative frames</td></tr>
<tr><td></td><td colspan="4" rowspan="2">Reconstruction interpretative frames of second argumentative circle</td></tr>
<tr><td></td><td colspan="5">Assess degree of social learning between stakeholders</td><td colspan="4">Assess degree of social learning over time</td></tr>
<tr><td></td><td colspan="9">Triangulation</td></tr>
<tr><td>Writing</td><td colspan="6"></td><td colspan="3">Writing temporary report</td><td colspan="4"></td><td>Writing final report</td></tr>
</table>

solutions, to be used in the second argumentative circle. Data were cross-checked with data collected during the first two stages of PRA (the process of triangulation). Triangulation throughout this study was done by respondent validation (structured direct) observations in several stages of the study.

Reframing: the second argumentative circle

For the second argumentative circle, participants of the first circle were invited to join up in meetings with members of the same stakeholder group, to discuss results of the fist circle, based on the five mind maps. Thus, circle 2 comprised four separate meetings with: the mothers, the fathers, the teachers of the primary school and the members of the committee. Participants were encouraged to think jointly about other stakeholders' views and opinions, to initiate the process of social learning and the formation of new plans to improve children's health and their mode of application. Participants who were solitary in their stakeholder group, such as the mayor, were approached for an individual meeting with the researcher.

Several research techniques have been applied during these meetings. First, after presenting the results of the first argumentative circle by the researcher based on the five mind maps, the perceived importance of each problem solution was ranked. Also, the likelihood of a plan to be widely accepted by the villagers was assessed using this tool. Each member received 10 stones which he or she could divide among the five mind maps according to perceived importance. Second, the discussion and brainstorm about plans was aimed at inducing the process of social learning among the participants within the same stakeholder group as well as social learning among different stakeholders. Third, observation of group dynamics aimed at gathering information on the degree of involvement, presence or absence of agreement, the development of new perspectives or ideas, interactions, cooperation, important shifts during the meeting, teamwork etc. Data from the second argumentative circle were cross-checked with former data for triangulation.

Solution

The final generic meeting filled the fourth phase, Solution; different stakeholders came together to discuss the plans sketched in the second argumentative circle. The village map was used during the presentation of the results so far, as well as a general mind map to visualize the structure of plans and roles of stakeholders in relation to each other. The main goal of this final generic meeting was to obtain congruence in the final details of plans and to make proposed plans ready to be implemented in the village. Observation of group dynamics was done by a research fellow. Triangulation was done by cross-checking outcomes with data from former phases.

Solution planning

In the fifth phase all obtained data were coded and analyzed to assess the degree of social learning among stakeholders and over time. All transcribed and summarized interviews were schemed together in the interpretative frames of the first and the second argumentative circle as matrices, representing respondents' judgment of proposed solutions, problem definitions, background theories and normative preferences. Interpretative frames between all stakeholders were compared to determine differences and similarities in the four elements between stakeholder groups. Interpretative frames were also compared between stakeholders in the first and second argumentative circle to determine changes in thoughts over time. Thus, comparisons are made within the interpretative frames of both circles (between different stakeholders) as well as comparisons between frames of circle 1 and 2 (to assess the degree of social learning over time). As part of the triangulation process, findings from interviews were checked with the literature and documents.

Results

The guided tours through the village, drawing the village map and observations gave information on the overall situation in Llano Largo. For example, there is no garbage system in Llano Largo, no sewage system and no running water. Villagers use the little river stream for drinking and cooking, bathing, laundry and to dispose of bodily waste and garbage. Animals also use the river stream for drinking and defecation. Children bring water from the river to the primary school, to use it for flushing the toilet, cleaning and washing their hands. Owing to the contamination of the river water, children become ill. Most commonly reported are diarrhea and worms, particularly in those children who do not wash their hands before eating. They also often suffer skin infections and flu. Garbage and corpses of death animals are often thrown on the streets or in the river. Dogs eat this and spread diseases through the village. Figure 1 shows the village map of Llano Largo.

Reframing, the first argumentative circle

The first argumentative circle consisted of semi-structured interviews with four mothers, three fathers, five teachers of the primary school (including the director), four members of the village committee, the mayor of the village, the director of a Guatemalan non-profit organization, the priest and representative of the local Catholic Church, and the director of the local hospital in San Antonio. During the semi-structured interviews, the researcher focused on the interpretative frames of each stakeholder: 1) judgment of proposed solutions; 2) problem definitions; 3) background theories; and 4) normative preferences.

From the transcripts of the interviews and the interpretative frames of the first argumentative circle it became clear that all participants were aware of the health-related problems of the children. Overall, they indicated the same problem definitions. However, stakeholders held other stakeholders responsible for the health problems mentioned. There was consensus in the background theories and normative preferences: all stakeholders perceived children's health and future as important norms. On the contrary, their proposed solutions diverged from giving calendars to parents to organize their time, to electing a new mayor.

Analyzing the interpretative frames revealed that there were five main health-related problems: 1) serious lack of hygiene; 2) no doctor, lack of medicines; 3) hunger and malnutrition; 4) absenteeism in school owing to child labor; and 5) no respect and no discipline in school. Semi-structured interviews gave in-depth information on these problems.

Serious lack of hygiene

Two main reasons are mentioned for the lack of hygiene: the lack of water and garbage on the streets and in the river.

Figure 1 The village map. Houses were drawn red (loam) orange (wood) or yellow (stone). Numbers in the houses indicate the number of children living in that household and/or the number of children that died in that family. Places where people wash themselves are indicated with stick-men. The degree of river contamination was indicated by: +, little contaminated; ++, contaminated; and +++, very contaminated. Furthermore, the way of cooking was indicated, shops, surroundings, etc.

Lack of water was mentioned by all stakeholders to be a serious problem in Llano Largo and all participants share the same value on the importance of water for human health. The primary school also suffers from this lack of hygiene. A member of the committee holds the mayor responsible for this lack of water:

''The mayor said that the tubes would come next week, but they are still not there. He told lies. We work with the truth, or we don't work.''

Participants agreed that the committee should converse to the mayor about this.

No doctor, lack of medicines

In 2006, the construction of a local hospital in Llano Largo was achieved with the help of the mayor, the population and a Dutch and an Austrian institution. Until now, this local hospital is still unequipped. According to all people interviewed, there is a lack of governmental help for several reasons. A mother states:

''They don't have any idea of helping people... Sometimes the children even die because they cannot cure the disease because there are no medicines!''

Most participants talked about a lack of funding, a bad communication with the mayor and some say that the mayor, who represents 48 villages in the area, prefers helping other villages or the village where he lives. Whereas the mayor states:

''Sometimes the government doesn't have the funding, so we have to refer to other non-governmental institutions. I'm undertaking steps with a private institution for a type of help.''

Hunger and malnutrition

Teachers notice that many children go to school without breakfast. Food prices and poverty are often the main cause of malnutrition. A mother:

''The government made the bread more expensive. So I can buy less bread, and now my children are hungry.''

Another mother explains poverty by having big families owing to, among other things, the lack of contraceptives, ''machismo'' (a term used to explain the controlling behavior of men over their wives) and norms concerning the Catholic religion. Some children steal if the family does not have the economic means to feed all children. Poor defenses as a consequence of the malnutrition could increase susceptibility to diseases. Most participants agreed that giving meals in school would be a solution for the problem of hunger and malnutrition. An additional advantage is that more children would attend school if meals were supplied. Once every 4 months the director of the school receives money for this, but this is only enough for 15 days. The interviews showed that most villagers are not aware of the problem of corruption. However, the director of the Guatemalan non-profit organization says that governmental projects for arranging meals for schoolchildren do not always work. Owing to corruption most meals are not supplied to the children:

''...There is corruption at all levels. It is a cancer.''

Another problem is that mothers do not show up to cook the meals in school. Teachers mention various reasons why mothers do not show up, referring to a lack of interest.

Absence in school owing to child labor

Because of poverty, parents send their children to work instead of school. The director of the Guatemalan non-profit organization explains the way of thinking of some villagers in Llano Largo:

''…It is more important to work to be able to eat, than going to school. This is the fundamental reason. And the other reason is that in some cases there is a lack of interest of the parents for the formation of their children. They don't see the need that the child studies... Why should one learn? In all cases, the child has to

work! To study or not to study, if you don't work you don't eat! So in school you are losing time. This is the criterion until today, which exists in some families in Llano Largo.''

This absenteeism slows their learning process, which annoys teachers because they have to explain things again. Teachers agree that parents should be informed about this, but they state that discussing poor children's performance with parents is difficult owing to a lack of interest from the parents' side.

No respect and no discipline in school

In school, some children fight with each other and steal each other's belongings. There is no discipline and mutual respect between teachers and pupils is lacking. Also some children do not have self-esteem. This could be a reaction owing to mistreatment in their homes. Teachers see children that are mentally as well as physically abused, and confirm that this negatively affects their academic performance. A teacher:

''...When you tell a child ''you are useless, don't do that'' even if they never did that before, they will never do it. And maybe they CAN do it! This is what psychological mistreatment does with a child.''

Proposed solutions

In all of the above five core problems, lack of communication between different stakeholders turned out to be the main cause. One of the teachers made a comment which turned out to be the base principle for the health promotion plan:

''I think that this communication needs to be done by a group that organize themselves and go from house to house because when you organize a meeting, not all people show up. They don't have time, or, there are people that want to change but don't want that the whole village knows that. So that's why it's better to go from house to house to communicate with the people.''

Table 4 Proposed solutions of the stakeholders on the five core problems (problem definitions, background theories and normative preferences not shown).

	Proposed solutions				
Stakeholder	Serious lack of hygiene	No doctor, lack of medicines	Hunger, malnutrition	Absence in school owing to child labor	No respect and discipline in school
Mothers	Plumbing system; talk to mayor	Talk to mayor to get a doctor and medicines	Breakfast in school	Obligate parents to send children to school; improve communication teachers and parents	Teachers should take more control
Teachers	Plumbing system; talk to mayor, funding; educate parents; garbage lorry; bury dead animals; practice hygiene in class	Staff in clinic	Nutrition in school; parents cook	Organize meetings; home visits; permanent jobs needed	Parents should teach children moral values
Fathers	Plumbing system; solar system; talk to mayor; improve organization; separate garbage; lorry	Medical checks in school by educated person talk to mayor, improve organization	Cheaper fertilizers	Higher educated people	
Committee	Discussion with mayor, clean the school	Collaborating with institutions that talk to mayor	Arrange funding for food		
Director of a Guatemalan NGO			Nutrition is responsibility of the government	Decrease machismo, change mentality in school; scholarships	Teachers should teach children discipline
Mayor	Plumbing system; improve water distribution	Arrange equipment from institutions			
Representative of the church	Boil or chlorate water	Meetings to discuss situation with church and school	Help in food distribution		

For each problem stakeholders came up with possible solutions. Table 4 shows these proposed solutions on each of the five core problems. To some extent the proposed solutions resembled although mentioned solutions were not concrete and only indicated their ''ideal situation''.

All interpretative frames showed consensus in the background theories and normative preferences of the stakeholders, which indicates that a health promotion plan based on these background theories and norms and values of the stakeholders is expected to be implemented successfully in the community.

Reframing, the second argumentative circle

The second part of APA, the second argumentative circle, was aimed at creating mutual understanding among stakeholders, reaching consensus on the proposed solutions and triggering active involvement in specifying the indefinite solutions of the first argumentative circle. Thus, in this study, the aim of social learning among stakeholders was purchased by triggering new insights in participants' mostly delineated thoughts.

Among all stakeholders there was a certain degree of social learning observed. First, stakeholders that presented their unspecified ''ideal situation'' in the first argumentative circle, gave more concrete ideas in the second argumentative circle with often detailed ideas on how to accomplish these ideas. Presenting ideas of other stakeholders by the researcher served as an incentive to think ''out of the box''. In this manner, individual solutions could merge into a single joint construct. Figure 2 shows a separate meeting with a father.

The idea of a teacher to do home visits was considered to be very important and brought a lot of additional ideas on how to execute this plan. It turned out that the idea on home visits could be applied on many health-related problems, including all five core problems. Additional ideas on home visits were, e.g., who should execute these home visits and improve communication between all stakeholder groups. There was agreement that home visits should be done by six villagers, each living in one of the six ''sub-departments'' of Llano Largo. The mayor gave this group a name: ''The Social Communication Work Group'' (SCW-Group). Participants mentioned dedicated people who would be suitable to become member of the SCW-Group. These people were approached, and (after presenting the current results) invited for the final generic meeting.

The final generic meeting

The principal aim of the final generic meeting was constructing a specific plan for the SCW-Group that would tackle the main health problems by their roots. As the deeper cause of health problems was the lack of communication among different stakeholders, the plan was mainly focused on improving communication. For this meeting, all different stakeholders were invited to come together to discuss disagreements and to make plans for the SCW-Group.

Figure 2 The reframing process. Meeting with a father.

Twenty-four participants were present, among which all six members of the committee, six out of eight primary school teachers, including the director of the school, six potential executers of the plans, among which fathers and mothers, the mayor and his companion, a lady from another village, who was interested in the plans for her village, and the director of the Guatemalan NGO was present with his wife and companion.

The generic meeting started with a presentation of the results of the interviews and meetings, along with plans considered to be achievable and applicable by the stakeholders (Figure 3).

Then, the feasibility of the plans was discussed on how to accomplish them to make the joint construct complete. From observations it can be stated that there was a relaxed atmosphere during the meeting, most probably because of the awareness of the participants that they all had the same background theories and normative preferences and because presented solutions of the second argumentative circle were considered meaningful by all stakeholders. The discussion between different stakeholders led to agreement on solutions

Figure 3 The final generic meeting.

but also new ideas developed. For example, during the discussion a group of farmers announced out of the blue that they would donate a part of their harvest to the primary school. If the SCW-Group then could find mothers that would come to cook, children could have breakfast in school. In this way, both problems of hunger and absenteeism in school would be tackled.

During the meeting, it became clear that the home visits by the SCW-Group could, by improving communication between the stakeholders, improve the situation in multiple ways, because the lack of communication was the core cause of most health-related problems. The SCW-Group could therefore create formal as well as informal relationships. The mayor stated:

> *''A requirement of getting help from the government is that a school or community is well-organized''.*

An improved organizational structure of Llano Largo (a main aim of the SCW-Group) could therefore be helpful in solving more difficult problems, such as the arrangement of the plumbing system and the arrangement of a doctor or nurse and medicines. All plans discussed and confirmed in the final generic meeting are visualized in the ''web of plans'' (Figure 4). Plans are elucidated as a component of the HPS concept.

HPS: the school curriculum The aim is to structurally integrate health education in the curriculum and teach the children discipline. The SCW-Group will discuss with the teachers how to achieve this (e.g., in cooperation with the local hospital).

HPS: the school ethos Plans concerning the school ethos are the water project, funding for food in school and the ''clean school'' project. The water project was perceived most important, because hygiene depends for a large extent on having a plumbing system. Improving organizational skills of the village is an important task of the SCW-Group to obtain the mayor's help in funding for food and the plumbing system. The SCW-Group will be supported by a professional communication worker, arranged by the director of the Guatemalan non-profit organization. For the ''clean school''

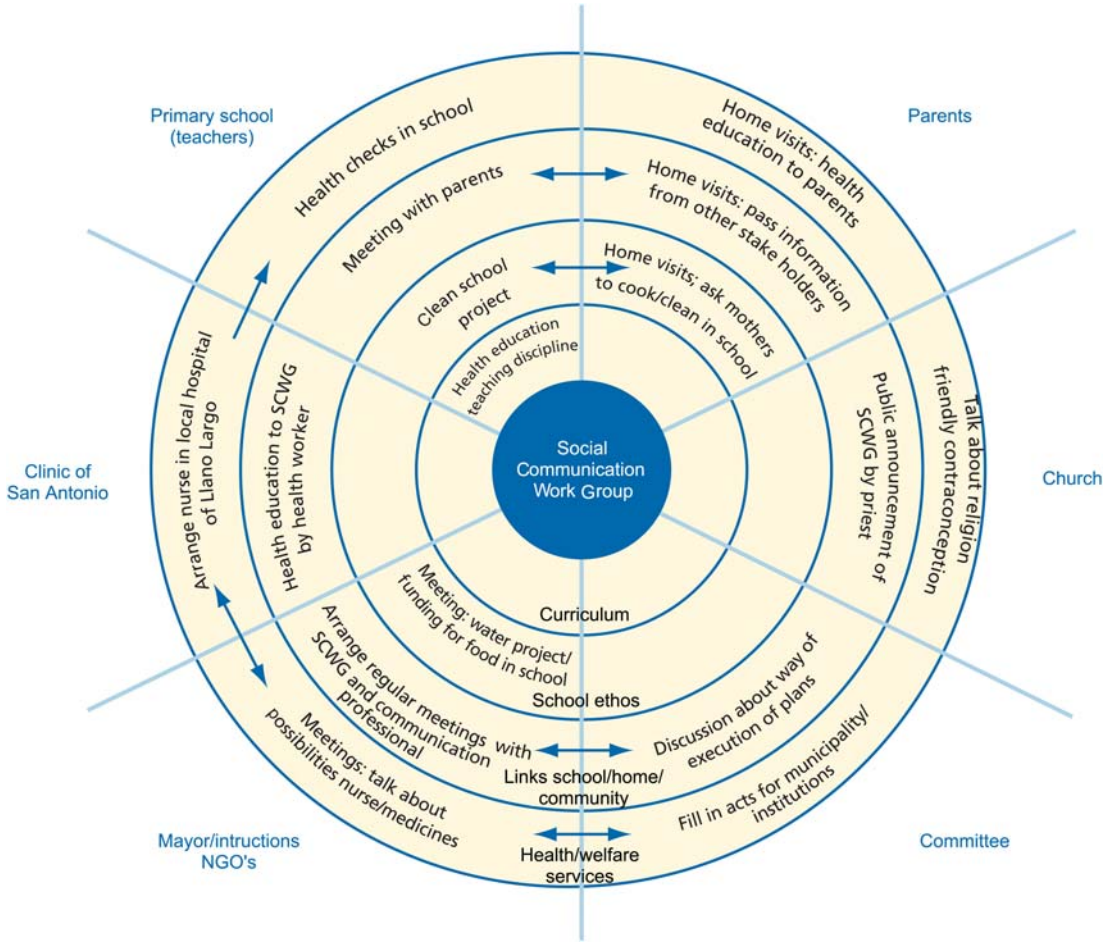

Figure 4 ''Web of plans''. All plans and ideas considered meaningful and achievable during the final generic meeting are categorized in the four components of the health promoting school: the curriculum, the school ethos, links between school, home and the community and health and welfare services. Plans are also categorized per stakeholder group, to make clear the involved group for each plan. The SCW-Group as the executing group is involved in all plans.

project, the SCW-Group will do home visits to ask mothers to join the project. Mothers will be asked with whom they would like to work, because it became clear that mothers sometimes do not come to cook or clean in school owing to difficult relationships with other mothers. Also, they will be asked when they can come to clean and/or cook to reduce time problems.

HPS: links between school, home and community The plan in Llano Largo is aimed at improving communication with all involved stakeholders, from closely related stakeholders, such as teachers and parents to external agencies, such as the municipality and the local hospital of San Antonio. The SCW-Group will arrange meetings with the teachers to then, commissioned by the director of the school, do home visits for announcements, advice or education. A professional communication worker will improve their educational skills (arranged by the director of the Guatemalan NGO), whereas health education will be given by a professional health worker (arranged by the mayor). Doing home visits will enable the SCW-Group to spread useful information from stakeholders to all villagers by going ''from house to house''. The SCW-Group will not only strengthen links between school, home and community but also links with the village committee, the church and the hospital of San Antonio. To begin with strengthening links with the church, an announcement of the SCW-Group by the priest is considered very important and useful because the priest is a person with a lot of status in the village and people trust him. Wherever the church can play an important role for the school, the school can be in contact with the church via the SCW-Group, e.g., for public announcements.

HPS: health and welfare services Another important link for the community is the hospital of San Antonio. Via the committee and the mayor, steps can be undertaken for the arrangement of a nurse and medicines in the hospital of Llano Largo. This is not easy; often there is a lack of funding. The SCW-Group could therefore try to strengthen links not only between the committee and mayor, but also with other institutions, such as the Guatemalan NGO. He also mentioned in an interview that he would like to arrange contraceptive medicines for the hospital. However, according to the church representative this is against the Catholic religion. He came up with the idea of taking natural control; therefore a professional could be arranged via the church, who can explain the concept of natural control. As concluded from the interviews and meetings, both measures are considered meaningful by many participants, although by different people: people agree or disagree strongly with the one or the other measure. The SCW-Group plays an important role here. First, for arranging this professional in church, meetings are needed with the committee the SCW-Group and the church to deliberate the plans. Second, inhabitants need to be informed about the possibilities and their ability to choose between the two measures, thus home visits are necessary. Health checks in school can be a useful preventive measure for children. Therefore, meetings need to be arranged between school, the SCW-Group, the committee and the hospital of San Antonio.

Overall results

Combining all processes reaching from the village map in the first week of research to the final generic meeting on the final day of research, have led to a joint construct of plans to reduce health-related problems in the children of Llano Largo. Presenting five mind maps of each core problem in the meetings of the second argumentative circle gave stakeholders the opportunity to discuss other stakeholders' interpretative frames. During this process, shifts in thoughts and ideas have been observed which can be seen as a process of social learning. Figure 5 shows a summary of the process

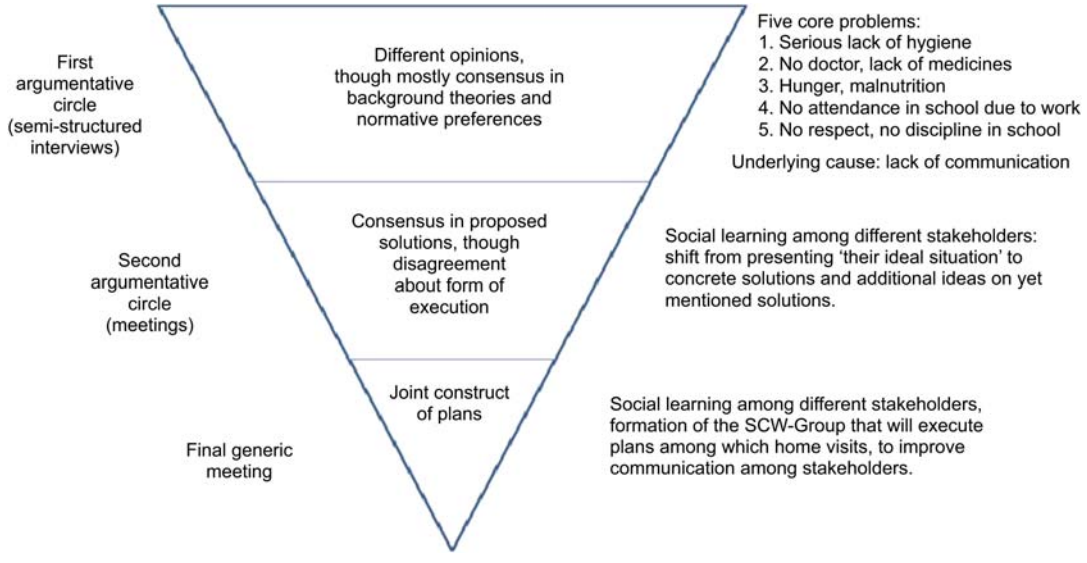

Figure 5 Summary of the development of the community-specific health promotion plan.

of development of our community-specific health promotion plan: a broad start of the research leading to a delineated, joint construct of plans to improve children's health by improving social cohesion between diverse stakeholders, such as teachers, parents, the village committee, the mayor, and external agencies.

Discussion

Applying PRA and APA techniques was successful for the development of a community-specific health promotion plan that was perceived important and achievable by the participants. In Llano Largo, the combination of PRA and APA techniques made it possible to sketch the overall situation and main health-related issues, along with their underlying causes. PRA has been a good additional technique to APA, because it gave more possibilities to familiarize with the inhabitants of Llano Largo. Community involvement is crucial in PRA and APA to adjust plans towards the specific needs of a community (7, 13). This was crucial for gathering sensitive information to make a successful plan for Llano Largo. Adding APA also allowed more opportunities for social learning processes.

Five core problems were identified: 1) serious lack of hygiene; 2) no doctor and a lack of medicines; 3) hunger and malnutrition; 4) absence in school owing to child labor; and 5) no discipline in school. Through in-depth semi-structured interviews, the lack of education among villagers, organization of the village and communication among stakeholders as the underlying causes of the above-mentioned core problems could be revealed. In line with the HPS concept, a community-specific health promotion plan was constructed and a ''Social Communication Work Group'' was elected to execute the plan. Involvement and enthusiasm of the participants was high, probably because participants felt heard, whereas participants beforehand did not have the possibility to express their opinions and did not feel accepted owing to a lack of communication. People of Llano Largo have now more capacity to solve their own problems, supported by the communication professional and the health professional.

Although each community has to deal with its own specific problems, the study's success suggests that PRA and APA techniques can be applied in other communities as well to develop different health promotion plans. However, communities other than Llano Largo might react differently to the researcher, and the high cooperation of the villagers in this research cannot be projected to other villages. Nevertheless, even if no consensus between stakeholders is achieved, the APA-analyst can still use the gathered data for advising the government or stakeholders on a joint strategy that increases the chances of consensus in the future (18).

There are several limitations of this study that should be mentioned. As stated before, the second argumentative circle showed that social learning processes and agreements can develop if other people's perspectives and solutions on problems are presented to stakeholders. However, some factors could have biased this outcome. First, because people knew the purpose of the study, they could also have given socially desirable answers. Also, women could have agreed with certain plans because they could have been scared of disobeying their husbands or voicing their actual opinions owing to machismo, even though their husbands were not present during the interviews and meetings. During meetings people might have found it difficult to show their actual opinion in front of other people which might have influenced the outcome. Second, during the second argumentative circle of APA, it was not possible to meet the director of the hospital in San Antonio again. She also could not attend the final generic meeting, nor could a representative of the hospital. This might influence the future collaboration of the hospital in executing the plans of the SCW-Group. The priest could also not attend meetings, but another representative of the church was present in the second argumentative circle.

Because PRA and APA are combined in this study, no statements can be made about their separate efficacy. Also, because these techniques were used for the development of a new plan, no health measurements were done. Future research, such as a longitudinal study on the effectiveness of the plan in improving children's health status in Llano Largo are necessary to examine the effects of public involvement in decision-making and the efficacy of the separate plans, e.g., home visits by the SCW-Group, on improving children's health status. In conclusion, PRA and APA techniques were successful to implement a HPS plan in Llano Largo. Follow-up studies should determine the long-term efficacy of the health promotion plan.

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