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Investigating citizens' information needs through participative research: a pilot study in Candangolandia, Brazil

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Abstract

This paper reports on a pilot investigation in Candangolandia, near Brasilia, in Brazil in 2010. The purpose of the investigation was to determine the efficacy of a participative research methodology for investigating: people's information needs; developing an information literate approach to problem solving; fostering problem solving and collaborative capabilities and enhancing a sense of citizenship. The research applied techniques that enabled people to collaborate and identify their information needs, as well as information solutions, through the exploration of a social problem that they had identified. Participatory Research and Action (PRA) was the chosen methodology. Nineteen techniques were applied. The findings indicated that it was possible to use PRA to explore information needs. Participants were able to identify, classify and prioritize information needs and use information in order to suggest solutions for the selected social problem. The intervention helped develop collaborative problem solving skills and a heightened sense of citizenship.

Keywords

Participatory Research and Action techniques can help people focus on their information needs and become more information literate.

Introduction

Today people are encouraged to become active learners rather than passive recipients of information (Hepworth and Walton, 2009). As a consequence, particular attention has been paid to people's information capabilities, i.e. their information literacy, that can be defined as:

''A complex set of abilities, which enable individuals to engage critically with and make sense of the world and its knowledge, to participate effectively in learning and to make use of and contribute to the information landscape''. (ibid, p.10)

Hepworth and Walton (2009) emphasize that:

"Empowerment is underpinned by information lit-eracy. Being able to learn effectively and indepen-dently and use the knowledge, data and information ... around them is likely to result in people having more choice. When people have choice, they are usually better informed about their situation and can see alternatives in a critical light, and they may be able to choose from or create a range of solutions or strategies. This can lead to people having more options when deciding how to participate and interact socially and how to use and contribute to the resources and services available''. (p.3)

Hence, people need to develop their consciousness of the role of information and the ability to access, store, retrieve and use information to improve their situation. But, ''many people find it difficult to access and use information around them, because of their political, social and physical environment'' (ibid.). This is especially the case in developing countries where people lack time, resources and education.

Developing these abilities individually is one possibility. However, to do so as a community is likely to be particularly effective due to the context-specific and social nature of learning (MacKeracher, 2004) and information literacy (Lloyd, 2007). Working participatively with a community to address problems has also been identified as an effective way to engage communities in problem solving (Chambers, 2005).

From an information behaviour perspective, recognizing the significance of context in terms of information needs and information behaviour has underpinned research over the last 20 years as reflected in the papers presented at the bi-annual Information Seeking in Context Conference. Hence, people have moved, to some extent, from the traditional survey approach to exploring people's information behaviour, to more ethnographic approaches where needs are investigated in context.

A combination of these theoretical backgrounds has influenced and underpinned this research. This research investigates methods that can be used, in developing countries and elsewhere, that enable people to explore their own information needs and find information solutions, and to develop their information literacy, as well as their capability to work as a community to identify and solve information problems that, if addressed, would improve their wellbeing. Three research questions were posed:

1. Can participative techniques be used to investigate people's information needs?

2. Would an investigation into the information needs of a community, using participative methods, help develop participants' information literacy, as well as collaborative, problem solving capabilities?

3. Would an investigation of the information needs of a community using participative methods lead to a greater sense of active citizenship?

Literature review

People's information behaviour

According to Wilson "information need is not a primary need, but a secondary need that arises out of needs of a more basic kind" (1999:252). These needs may be driven by environmental, technological, social, demographic, psychological and behavioural factors. Information-seeking behaviour can "arise[s] as a consequence of a need perceived by an information user, who, in order to satisfy that need, makes demands upon formal or informal information sources or services' (Wilson, 1999:251).

Belkin and Vickery (1989) stated that information needs become apparent when people recognize a gap in their state of knowledge. This gap is usually apparent when people have to deal with a situation or problem (basic needs) (Nicholas and Herman, 2009) and are unsure how to cope. Case (2007) states that "needs" are associated with an "inner motivation state" that brings about thought and action. Nicholas and Herman (2009) add:

> "it is the need for information that individuals ought to have to do their job effectively, solve a problem satisfactorily or pursue a hobby or interest happily. The operative word here is surely 'ought', the assumption being that for people to perform efficiently, effectively, safely and happily, they need to be well informed, that is, their information needs should be met". (p.18)

However, people may not be conscious of their information needs. Nor will they, necessarily, seek information. This may be because they are unaware of information that could help or how to access it, or, they may lack motivation. Information seeking and use are closely related to people's ability and approach to learning and problem solving (Marchionini, 1998) which, in turn, is related to their learning experience and their sense of self-efficacy. Whether people approach problems from an information perspective, consciously identifying their information needs; valuing information as a

tool to help solve problems and systematically acquiring, processing and using information is, therefore, influenced by a number of factors.

Formal sources, such as, newspapers, books, the World Wide Web, are not the only sources of information. People, and experience or situations where information is ''encountered'' (Erdelez, 1999) can be a source of learning. It may not be essential to be able to read or to use technological resources to satisfy information needs (Hepworth and Walton, 2009). Information, for that matter, may not be physically recorded. Bates (2002:128) asserts that ''we absorb perhaps 80 percent of all our knowledge through simply being aware, being conscious and sentient in our social context and physical environment''. People's information behaviour is therefore complex and often unconscious. To understand this behaviour and for people to become more conscious of their own information needs and how information can be acquired and used is also complex. Hence, in this study, the intention was to focus on and explore techniques that could elicit this information and help people reflect on these issues; to 'surface' both known and unconscious information needs and develop information literacies. To do this it was considered important to explore, collaboratively, information behaviour in the community. It was also felt important to explore information behaviour within the context of people's need to deal with issues that concerned the community.

Methodology

Epistemological and methodological background

This research falls within the interpretivist epistemology and methodologically draws on critical inquiry and Participative Research and Action (PRA), and the focus of the research is information behaviour, information literacy and citizenship. Emphasis was placed on people's own interpretation and perception of their particular context. The issues and problems that were investigated came from the participants and reflected their perception of their reality. It is possible that the findings are transferable to others who share a similar context. However, it was not the purpose of this research to generalize and reliability should be judged on the basis of criteria used to judge other interpretivist, qualitative research, such as credibility and authority (Bryman, 1996) and whether the work effectively addressed the research questions.

Common to critical inquiry, this research was as concerned with developing critical awareness as with solving a problem (Brookfield, 1987). Bringing people

together promoted learning through the exchange of knowledge and experience and was intended to help develop critical awareness. Critical inquiry shares many characteristics of PRA. The latter provided the methodological framework and influenced the design of the intervention. PRA has evolved in the developing country context, initially in the guise of Participatory Rural Appraisal. According to Chambers (2005:3) PRA is ''a family of approaches, behaviour and methods for enabling people to do their own appraisal, analysis and planning, take their own action, and do their own monitoring and evaluation''. PRA influenced the style of research. Here, the 'respondent' is seen as 'partner' in the research and the 'expert' with regard to their experience and the 'researcher' is, primarily, a facilitator. PRA practi-tioners have also developed a number of tools that help people explore and express their ideas. In this study these were adapted and used to explore information behaviour.

Many methods and instruments have been developed to survey information behaviour, for instance, observation, focus groups, questionnaires and interviews. However, these were considered inappropriate for this research. Questionnaires, for example, tend to pre-define the nature of the topics under investigation and to some extent determine the degree of significance that can be given to topics. Whereas in this research, there was no preconception about the information needs of the participants and a fundamental part of the research was to see whether a participative approach would enable people to explore and identify their information needs. Interviews, although providing more opportunity for the unexpected, were also felt to be inappropriate because they would not have been participative or enabled the community to explore their own needs and together reach a consensus as to what was important. The group meetings could be loosely described as focus groups. However, a participative approach is not normally taken when conducting focus groups. Using a participative approach a number of topics may be discussed but the discussions are highly structured to conform to participative guidelines. Furthermore, a key aspect of PRA is capability development.

According to Freire (2007), participatory work is a positive alternative to education and can involve all people in society. Competences, skills and attitudes can be developed through PRA and it tends to promote interaction between community members and engagement with the activity. PRA allows people to participate in the investigative process and develop research skills and critical ways of approaching information, a characteristic shared with information literacy and problem solving. This is partly achieved through reflection, an important part of the learning process.

The value of taking a participative approach has been recognized by organizations involved in international development. The United Nations Educational, Scientific and Cultural Organisation (UNESCO) has urged governments to adopt popular participation as the basis for development. The World Employment Conference issued a programme of action that included "the participation of the people in making the decisions which affect them through organizations of their own choice" (Cohen andUphoff, 1980:18). The International Conference on Agrarian Reform and Rural Development (ICCARD) stated that "participation by people in the institutions and systems which govern their lives is a basic human right and also essential for realignment of political power in favour of disadvantaged groups and for social and economic development" (ibid., p.18).

Cornwall (2009) notes that PRA can mobilize the population and increase support for change. In addition, it is possible to increase services with a minimal investment of central government funds, through voluntary work and increased, active, citizenship. Likewise, it promotes efficiency and effectiveness because projects tend to have a better chance of success and sustainability if people are more directly involved. Many organizations have "arrived at a near consensus that development cannot be sustainable and long-lasting unless people's participation is made central to the development process" (Kumar, 2008:23). Finally, PRA carries the idea that increased participation will mean a more democratic, egalitarian, and equitable society, as well as self-determination by people - and foster a critical awareness of rights and a more equitable distribution of resources which, in turn, will motivate people to participate in decisions that affect their lives.

The pilot investigation was done in Brasilia, the capital of Brazil, located in the Distrito Federal (Federal District) in 2010. Three sites were considered: Associacao dos moradores do Varjao (Varjao Housing Association), Associacao de mulheres de negocio e profissionais do Brasil (Business and Professional Women's Association of Brazil), and Comunidade de moradores da Candangolandia (Candangolandia Housing Community). Candangolandia was chosen because contact was able to be made with community members; a free space was available for meetings and a broad selection of people were able to take part,

Table 1. Meeting subject matter

First meeting	Introduction and selection of problem experienced by the community that would be

	the focus of further discussion
Second meeting	Survey of information needs
Third meeting	Analysis of the information needs
Fourth meeting	Analysis of the information needs and information seeking behaviour
Fifth meeting	Discussion and identification of information solutions.

including men, women, old, young, single, married, employed, unemployed, students, and retired.

The meetings were conducted with 18-23 individuals on average. A personal contact became the mediator between the researcher and the community members. A total of 48 people living nearby were invited to participate, of whom 22 attended the first meeting and became involved in the pilot investigation.

The context:

- There were two plots of ground, one 8m x 33m, and another 7.5m x 78 m. On each plot there was a main house, where the owners lived. To gain extra income, both owners had built rooms at the back of the plot: six rooms in the former and seven rooms in the latter, all of them to let. In total there were fifteen families living on the two plots. The meetings took place in one communal space on one plot.
- Most families had two or three children.
- The men had jobs such as working in restaurants, bars, construction and shops. The women worked in domestic jobs. There were many motels (hotels with rooms that could be let for a few hours) near the community. Three of the nine women worked there as cleaners.
- The five young people (between 16-21 years old) were unemployed.

Five meetings were planned to implement this pilot investigation, each one lasted about 2-3 hours. Table 1 gives an overview of the meetings.

Nineteen techniques were applied in order to enable people to work together on defining information needs and accessing and using information to better understand and suggest solutions to social problems, including information solutions that would facilitate action. As a result of this pilot investigation, techniques were further developed and a subsequent intervention was formulated.

Table 2. Activities, techniques and objectives applied in the first meeting

First meeting - Presentation and selection of the topic

No.	Activity	Technique	Objective
01	Presentation of the research and PRA	Explanation - researcher explained the research and the participatory approach.	To present the research, and to explain the importance of participatory work.
02	Introduction of the participants	Presentation - participants wrote their names on cards and stuck it on a badge.	To introduce each participant; to welcome; to warm up; to recognize the importance of each individual.
03	Values and rules definition	Brainstorming - participants talked freely about values, rules and behaviours, while someone wrote all the suggestions on a large sheet.	To agree values and rules for the group that would help the meetings work well.
04	Presenting problem/situation	Cards - participants wrote problems on the cards and stuck them on a large sheet of paper.	To select the social problem for study.
05	Analysing the social problem	Brainstorming and cause and effect diagram - participants talked freely about reasons, causes and effects related to the selected social problem, while someone wrote all items on a large sheet.	To explore the social problem.

Techniques included: scene setting, brainstorming, cards for people to express ideas, cause and effect diagrams, paper sheets to capture ideas, individual and group work and discussion. The range of techniques was necessary for three reasons. First, specific techniques were required to investigate different topics and support different activities. Secondly, using a range of techniques, over a period of time, was more likely to lead to active engagement - bearing in mind that most participants had had a long working day. Thirdly, having a number of meet-ings gave time for reflection.

The first meeting

The first meeting, attended by 22 people, involved a set of six activities, which are summarized in Table 2.

At the initial meeting, the aim was to introduce the researcher, the research aims (why the researcher was there, what she expected of participants and the benefits to the group) and to identify the topic where information needs would be investigated. In addition, participants introduced themselves and agreed how they wanted to work together, including core principles and rules for working. These included showing respect to each other (listening to their opinion, accepting other people's ideas); working together as a group and honesty.

One participant became the scribe and recorded output from the activities. While participants were talking, she wrote the ideas one by one on a large sheet. Despite being a teenager (18 years old), she had the highest level of education in the group, and this made her a natural leader. However, the researcher did have to intervene to ensure that she recorded people's opinions literally.

The second meeting

The second meeting, attended by 20 people, had three activities, which are summarized in Table 3. The main aim was to identify information needs.

Using a cause and effect diagram, people were able to explore and share their views about problems that affected their community. This 'view' was built through participants' contributions and reflected their

Table 3. Activities, techniques and objectives of the second meeting

Second meeting			
No.	Activity	Technique	Objective
07	Remembering the first meeting	Discussion - researcher asked each participant to talk about what they had learnt, what they did not understand, and what needed to be improved.	To reflect on activities, behaviour and learning and to help participants develop critical awareness.
08	Surveying information needs	Brainstorming - participants talked about the information that they needed to understand the problem. A cause and effect diagram was used to	To identify information needs based on cause and

			effect diagram.
09	Evaluation of the second meeting	Answer question - on a piece of paper, each participant answered questions about the activities.	To reflect and evaluate activities; to improve processes and help par-ticipants develop critical awareness.

Table 4. Activities, techniques and objectives of the third meeting

Third meeting - Analysis of the information needs

No.	Activity	Technique	Objective
10	Reflection on the second meeting	Discussion - individually participants talked about what they had learnt, what they did not understand and what needed to be improved.	To re-think activities, to evaluate the researcher's and research participants' learning and to help participants develop critical awareness.
11	Classifying and categorizing information needs	Workgroup - participants worked in small groups to classify information and create categories.	To eliminate redundancies and to classify information in accordance with its content.
12	Evaluation of the third meeting	Discussion - individually participants talked about the activities. They were asked to identify things that needed to be improved and were asked not to repeat what the other participants had already said.	To reflect on and evaluate activities, improve processes and help participants to develop critical awareness.

understanding of the public health system. Each item in the diagram indicated information needs. For instance, when people said that corruption contributed to the bad public health system, they identified information that would help to understand and confront the issue. For example, information about how money was spent; who were

the managers of the health system; which were the fiscal institutions dealing with health; how to bring iniquities to light.

The initial plan was to document information needs and to classify, categorize and rank their importance. However, people complained about the length of the meeting and activities were carried over to the next meeting.

The third meeting

The third meeting, attended by 18 people, had three activities, as summarized in Table 4. The main aim, following on from the previous meeting, was to classify and categorize information needs.

Classifying information needs provided material for the next step, where participants and the researcher looked for information sources that would help satisfy the information needs. This enabled participants to become familiar with the information landscape. They defined four categories of information, namely: hospitals and specialities, medication and effects, health professionals and patients and the public health system. Information linked to the first

Table 5. Activities of the fourth meeting in relation to techniques and objectives

Fourth meeting - Analysis of the information needs and the seek behaviour patterns

No.	Activity	Technique	Objective
13	Reflecting on the third meeting	Discussion - participants individually talked about what they had learnt; what they did not understand and what needed to improve.	To re-think activities; to evaluate researcher and research participants' learning and to help participants develop critical awareness.
14	Classifying information needs by importance and accessibility	Brainstorming - participants classified information by importance and ease of access. Each kind of information was stuck on a large sheet according to classification.	To select information to be retrieved.
15	Surveying information seeking behaviours	Answer questions - on a piece of paper, participants answered questions about how they accessed and used information.	To identify how people access and use information.

| 16 | Evaluation of the fourth meeting | Discussion - the researcher asked participants to evaluate all previous activities. | To reflect on and evaluate activities, improve processes and help partici-pants develop critical awareness. |

Table 6. Activities, techniques and objectives of the fifth meeting

Fifth meeting - Solution for the selected social problem

No.	Activity	Technique	Objective
17	Remembering the fourth meeting	Discussion - individually participants talked about what they had learnt; what they did not understand; and what needed to improve.	To reflect on activities, behaviour and learning and to help participants develop critical awareness.
18	Analysis of the social problem	Workgroups - participants accessed and used information in order to identify solutions.	To access and use information in order to identify solutions to the social problem.
19	Evaluation of the fifth meeting	Discussion - first, the researcher talked about the second intervention and recruited people to participate in the next intervention. Then, participants talked about what they had learnt, what they did not understand and what needed to be improved.	To reflect on and evaluate activities, improve processes and help participants develop critical awareness.

category - hospitals and specialities was found via the Secretariat of Health of Distrito Federal. Information associated with medications and their effect was found via the Anvisa Institution and information relating to health professionals and patients was available from the Medical Council. Information about the public health system was found via the Distrito Federal.

The fourth meeting

The fourth meeting, attended by 23 people, had four activities, as shown in Table 5. The main aim was to classify information needs by importance and accessibility, as well as to understand information behaviour patterns.

The fifth meeting

The fifth meeting, attended by 18 people, had three activities, as shown in Table 6. Its main aim was to explore solutions. Because this meeting was the last one, the researcher also instigated a discussion about next steps. Additional time was spent evaluating the intervention and the activities and techniques.

All findings stem from these meetings. The researcher's role was to provide a space and mechanism so that the meetings could take place; to help highlight key topics; to encourage people to explore topics in-depth and to ensure that experiences and thoughts were shared. The researcher also synthesized and analysed the data and reflected on the overall process. When reporting the results and comments of the participants, the researchers tried to retain the tone of the participant's comments. However, in some cases similar comments were synthesized.

Findings and analysis

The starting point in the data analysis was to convert raw data to a format that could be analysed. Each activity had a specific objective and produced a data set. The data from cards, sheets and pieces of paper were transcribed. Data was analysed to determine whether planned outcomes were achieved. This included determining whether information needs were evident and whether the community identified information solutions. An indication of developing capabilities, for example, was shown in people's increased ability to listen to each other, to participate in discussions and contribute ideas, to accept that other people may hold different views and to ques-tion. Commitment was noted by attendance. Critical awareness and citizenship were reflected in the verbal data where people talked about the problems faced by the community, social responsibilities, citizens' rights and obligations, as well as the potential impact of their actions and inaction.

The findings are presented in accordance with the research questions posed in the introduction.

Can participative techniques be used to investigate people's information needs?

The purpose of activities 04, 05 and 08 was to identify information needs. Activity 04 identified the problem situation. Each participant wrote the problem situation on cards (participants could write as many as they wanted, but had to write just one on each card). Then, participants glued their cards to a long sheet of paper on the floor. One participant in collaboration with others organized the cards by subject. The problem situations are described below:

- Health assistance: three participants were concerned about health assistance and one pointed out inadequate hospital administration.
- Transportation: two participants were concerned about the lack of public transportation.
- Security: one participant pointed to the lack of regular patrols and another indicated the lack of qualified professionals.
- Infrastructure: one participant pointed out that streets and public places are dirty and have deteriorated.
- Housing: two participants talked about the ground plot regularization, while three pointed out the lack of assistance enabling citizens to buy their own house.
- Employment: three participants talked about the lack of jobs, mainly for young people.

Due to the desire for a reasonably detailed insight into a particular type of information need and to provide sufficient time to reflect on the process and the outcomes of the interventions it was decided that only one topic could be covered over the course of the five interventions. The first topic chosen for discussion by the group was housing. However, after further discussion, participants chose to concentrate on the public health system.

The objective of activity 05 was to discuss this topic - the public health system - in order to identify information needs. First of all, participants talked about the problems associated with the health system and the delivery of public health in their community. These are summarized below:

- The health centre doesn't work at night. People have to go to other centres in an emergency, on foot or by car (most of them did not have a car), because the public transportation did not work after 10.00 p.m.
- There is no emergency assistance, only via previous appointment.
- There is inadequate equipment to conduct check-ups.
- There are no physiotherapy professionals.
- They spend all day waiting for their appointment.
- There are not enough medicines, pills, aids or other equipment necessary for professionals to do a good job.
- Professionals are not well prepared; they are very rude, and sometimes they do not know what to do.

- There is no preventive health assistance to avoid diseases.

After that, the researcher wrote on the middle of a long large sheet 'Bad public health system'. Then participants identified factors that caused the 'Bad public health system' and the researcher listed them on the left side of the sheet. These included the following:

- Health professionals are not sufficiently well trained due to the lack of training programs for doctors and other health professionals.
- The health service is disorganized. This is because the public health system is too big and health pro-fessionals do not know how to manage hospitals and health centres. In addition, emphasis is not placed on the efficiency or efficacy of doctors and other health professionals.
- There is a high level of corruption because of the lack of supervision.
- The health centres are crowded. This is because the local health service has to assist people from other cities and states.
- Citizens do not know how or where to complain or do not believe in the systems for claims.
- There is no information about citizens' rights or, if it exists, how to access such information.

Finally, participants indicated the effects of the 'Bad public health system'. The researcher listed them on the right of the sheet. These are paraphrased below:

- High level of mortality.
- Many cases of physical deterioration due to wrong treatment and/or lack of treatment. Because of this people are unable to work or study and unemploy-ment levels increase, while the level of production, efficiency, and quality of life decreases.
- Public money is not applied correctly and efficiently, because there is no effective control. Hence, the public administration does not worry about being efficient, it spends more money than is necessary, and part of the health budget is siphoned off for other activities. In addition, there is a lack of medicine, pills, aids and other equipment necessary to help professionals do a goodjob.
- Doctors do not show commitment to their work.
- Citizens are not always respected and may suffer negative consequences as a result of visits to hospitals or health centres.
- Public servants have more rights than citizens.

The objective of the activity 08 was to identify information needs based on the cause and effect diagram. Participants identified 28 kinds of information that they judged necessary to help address problems. These were clustered under 'medical assistance', 'the medical system', 'medical knowledge', 'medical advocacy':

Medical assistance

- which specialities the health public system offers
- where to go for specialized examinations like x-rays, imaging, HIV tests and so on
- where to go for specialized assistance, such as physiotherapy, dentistry, dermatology, psychology and neurology.
- where to go in an emergency.

Medical knowledge

- how to prevent pregnancy, diabetes, sexual diseases, high cholesterol, and other diseases
- what is the chemical composition of medicines and how to take them (when medications are provided by public hospitals, they tend not to have patient information leaflets)
- how to understand the information printed on the patient information leaflet provided by pharmacists
- how to take medicines correctly
- how to understand the medical compound, its usual prescription, and alternative counter prescriptions
- what can be done in cases where there is a lack of medication, pills and supplies in public hospitals.

Medical system

• how much the infrastructure of preventive health costs in comparison to the regular system of health

• how the public health system works

• how public servants and citizens should behave towards each other

• how public health money is lost and how to avoid it

• how the public health money has been applied

• what instruments are there to track the public health system expenses

• how the hospitals are distributed around Distrito Federal

Medical advocacy

- how to demand recompense and challenge public servants who give the wrong treatment or neglect or abuse their patients
- how to demand that a doctor should write legibly
- how to participate in the doctor selection process in order to avoid bad professionals
- who are the politicians and public servants responsible for managing the health public system
- how to develop and apply a code of behaviour for public servants and citizens
- how to demand that doctors and other health pro-fessionals identify themselves

- how to demand from health professionals, mainly nurses, that they treat us politely
- how to know our rights and responsibilities as citizens
- how to demand from doctors that they explain the prescription and the treatment
- how to demand from doctors that they explain the side effects of medication and the impact of wrong usage by patients
- how to bring emergency assistance to the community.

It can be seen that information needs were evident when people explored needs within a specific context, as Nicholas and Herman (2009) have stated. The participative method and the use of the cause and effect diagramming technique provided an effective tool to explore issues and identify information needs.

Would an investigation into the information needs of a community, using participative methods, help develop participants' information literacy, as well as, collaborative, problem solving capabilities?

The activities in this participatory research had, in part, the intention of enabling participants to develop their information literacy, as well as, their collaborative, problem solving capabilities.

In activity 11, participants were able to group infor-mation needs and became aware of information resources that would help address their needs. In addition, activity 14, where people classified information in accordance with accessibility and importance, encouraged people to start to think about problems as information problems and to consciously consider their information needs and sources of information that could help, hence developing an information literate approach to problem solving. Furthermore, in activity 18, participants developed and demonstrated their ability to manipulate and use information, collaboratively, to analyse their situation critically and suggest information solutions.

Examples of solutions put forward by participants included:

- Knowledge about available specialist support - participants said that it was important to know hospital and health centre specialization so that less time was spent looking for the right place. They also wanted to have the telephone number of each hospital and health centre.
- Patient information leaflet - participants said that it was difficult for ordinary citizens to understand patient information leaflets because there tended to be too many technical terms. Despite these difficulties, they agreed that the more they understood the prescription and the medication, the more likely they were

to take medicines correctly. It was felt important that patient information leaflets were written in a way that the majority of patients could use this information. They were therefore interested in Anvisa (the Brazilian regulation organization) and what this organization is doing to improve the information printed on patient information leaflets.

- They would like to receive leaflets about how to avoid diseases.
- They said that they did not know that doctors and other health professionals had an ethical and behavioural code. They would like to know how infringements of this code of practice could be reported and action taken.
- They were interested in the rights of citizens with regard to good health and wanted to know how to demand that these rights were acted upon.
- They wanted to know where to take their grievances and suggestions with regard to health matters.

Participants were also able to identify information that was either unavailable or confusing. For the former, they highlighted the lack of information about health money embezzlement and the cost of preventive treatment in comparison to disease treatment. They highlighted the need to understand budgetary information. Currently, budgetary information is in a form that is incomprehensible due to the use of technical terminology. The researcher tried to explain, however, that this was difficult since it required specialist knowledge. This implied that to help satisfy community information needs requires the involvement of public servants who could explain technical concepts and share knowledge.

Through the various activities, members of the community were better able to, collaboratively, analyse their social problems and identify solutions. This supports Chambers' (2005) claim that people, poor or marginalized, are capable of analysing their own realities, and that reality can be understood through discussion and negotiation (Rey, 2005).

Reflection was used to evaluate the intervention and verify learning and enhance critical thinking in relation to information and the situations they experienced. This was challenging to start with. However, participants became more competent over the course of the intervention, as indicated below:

- In the first meeting, reflection did not work very well. People were tired and they evaluated the entire meeting in a superficial way. They said it was "awesome", or it was "good". This was partly to do with the way the reflection was structured. It was apparent that people were more comfortable giving praise than being critical, other than saying the meeting was too long.
- In the second meeting reflection improved. The researcher asked people to talk about what they remembered about the meeting and what they learnt. They did not comment on the overall process, however, they were able to comment on

specific activities in detail when questioned. They knew what they did and why they did it.

- In the third meeting, participants found it easier to talk about learning and about their understanding of each activity. When the researcher asked them if they would be able to conduct this exercise on their own, all of them said yes. Three group members were able to describe each activity in detail and explain the importance of it.

- In the fourth meeting reflection and evaluation worked very well. The researcher asked them to suggest how to improve the activities. Rules were applied to avoid repetition and help them think and discuss effectively, such as having to give different suggestions - i.e. no repetition - and everybody was asked to give at least one suggestion if they could. They thought deeply about things that needed to improve and complained in a joking manner when others made suggestions that they had thought of. This implied that people became better and more confident at reflecting but that reflection needed to be relatively structured and focused. Comments they made included: "e necessario desenvolver atividades que nos ajude lembrar das atividades dos dias anteriores" ["it was necessary to develop an activity that would help to remember the previous intervention"]; "algumas pessoas falam demais e nao respeitam quando os outros estao falando" ["some talk too much and do not respect when others want give opinions"]. They commented on the disruptive aspects of participants' behaviour, such as, people talking at the same time, or too loudly or when people were late or joined and then left the meeting and if they returned disrupted the meeting because of the time needed to explain what had happened.

- In the fifth meeting the evaluation did not work as planned, however, the result was satisfactory. The main activity in the last meeting was to identify how information could be best communicated. They found this activity harder to evaluate. This was partly because there was a great deal of general discussion about accessing information and the difficulties they had, including literacy issues. They were able to evaluate their ability to manage information and identified a number of issues, including: young people not having a proper education that developed critical awareness and technical skills; that there was nowhere for people to get together to talk about social problems; older people were not able to handle e-sources; young people as a rule need to work, and as a result, they stopped studying; there was a small number of illiterate people in the community and almost all people had some difficulty reading and understanding information; they felt that they did not have time to be engaged in community activities.

Participatory techniques enabled people to learn collaboratively and the intervention led to people developing their information literacy and taking an information literate approach to problems. However, whether this knowledge and attitudes were internalized by the participants, and would be applied to new problems, would only become evident through a subsequent intervention involving the same participants.

Would an investigation of the information needs of a community using participative methods lead to a greater sense of active citizenship?

- The statements below indicated a sense of active citizenship where, based on their analysis of the situation, participants were able to suggest solutions and indicated how they could take an active role and advocate for change:
- More money for public health - discussion suggested that the public health system should be a top budgetary priority. Participants wanted managers and politicians to commit to this. According to them, the national and federal budget should be defined with this priority in mind and communities needed to play a role in the budget definition process. In addition, participants said that money destined for the health system had gone to other projects without community agreement. According to them, taking health money away was unacceptable.
- To implement effective control over the public health system to avoid corruption, fraud, and embezzlement - the laws should be stricter with punishment for doctors and other health professionals if they were corrupt, fraudulent or embezzled money. Participants suggested that it was necessary to create an external organization to control the money spent within the health system, rather than placing control within the organization, which tended to lead to non-disclosure of errors and misdemeanours. Furthermore, they thought that greater citizen participation would act as a control.
- Rights and responsibilities need to be known - participants said that they did not know how to argue or complain or demand their rights. Through better information, they thought that they would know their rights and they asked for training for citizens and public servants in order to teach the former to complain and the latter to help them provide a service that took note of these rights. They said that it was necessary to create a structure for complaints where citizens are respected and responded to. Citizens should, they argued, have the power to monitor and control aspects of the health system, including defining the budget and service evaluation.
- Specialized health centres should be open 24 hours per day - participants said that the population of Candangolandia is large (about 30,000 people), and it could be argued that a hospital, or at least a health centre working 24 hours per day with key specialties is warranted. Participants also suggested bringing emergency services to the city in order to avoid the displacement of ill people to other cities.
- To improve the health public system in both Distrito Federal and cities around the capital there was a need to control the influx of citizens from other cities to Candangolandia - participants said that their current health centre assists people from across the Distrito Federal and cities around the capital. They added that the health centre cannot support all these people and this is one reason why the public health system is not good. They also suggested that partnerships should be made with other cities in order to upgrade the health system. • The motivation and commitment of doctors and other health professionals needed to improve - participants said that doctors and other health professionals are not motivated or committed to the public health system.

Many of them had another job, which increased their earnings and gave them better working conditions. Therefore, participants suggested: contracting more health professionals; increasing the length of the time that health professionals have to work; providing them with more effective training; adopting new rules that force health professionals to keep to schedule and meet appointments; providing better working con-ditions for health workers and earnings that were more compatible with the private sector.

Whether or not all these suggestions are practical or likely to be taken up by government and the appropriate authorities, it was apparent that through the course of intervention there was a growing awareness of rights and a sense of responsibility and a desire to participate in the democratic process. This stemmed, primarily, from activity 18 where they discussed solutions to the problems they had identified. Again, however, there was no evidence, at this point in the research, that participants went on to advocate for these changes.

Conclusion

The concepts of information behaviour and participatory methodology are not new, but using the latter to survey the former is novel. The pilot investigation indicated that the techniques and the underlying ethos of PRA could be used to explore and enable people to focus on their information needs and the role information can play in helping to confront problems and, in that sense, become more information literate. Furthermore, the intervention was seen to enhance the ability of these people to work collaboratively to analyse social problems and suggest solutions, as well as foster the desire to take an active role in helping to resolve problems experienced by the community. However, whether or not involvement in this study, which was in effect a pilot, and the subsequent study, will have an impact on the behaviour of the people involved and lead to either the development of local solutions or advocacy by the community is unknown. This will, however, be monitored.

Lessons were learnt from this pilot study and changes would need to be made to help improve a similar intervention in the future. This would include shortening the meetings and introducing activities that helped break up the sessions and refresh participants - for example, a brief roleplay where non-participative behaviour could be acted out. This would inject an element of humour, as well as concretizing aspects of collaborative behaviour.

It was also felt that participants should be paid. Although participants were sufficiently motivated to take part on a voluntary basis, it was felt that additional

motivation and commitment to the process would be gained if they were financially rewarded. In addition, following the underlying ethos of PRA, it was thought that this would indicate respect for the participants and that their time was valued.

The pilot investigation also indicated that although data was recorded using paper, cards and photographs, a better record of activities and discussions was needed. It was therefore decided to record audio data and video the subsequent intervention. This would also have the advantage of recording people's behaviour and how they interacted with each other and would indicate how people felt about the activities.

Lastly, it was recognized that undertaking participative research is very challenging. Traditionally researchers are in control of the intervention through pre-planned, piloted, questionnaires or interview schedules, whereas using a participative approach the intention is literally to facilitate, providing the opportunity, the overall structure and the tools that enable participants to take control, lead activities and negotiate their own solutions. This can be unsettling since the outcome is less predictable and requires the researcher to have faith in the capabilities of the participants. In addition the researcher needs to be familiar with a broad range of participatory techniques that need to be applied and adapted, often while the intervention is taking place, as well as having effective interpersonal skills. Learning how to apply PRA therefore takes time and needs to be practised so that the researcher can gain competence, as well as confidence, in the method.

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