ICT (Information and Communication Technologies)
FEASIBLE SOLUTIONS BE IMPLEMENTED IN
VULNERABILITY COMMUNITY PARAÍSO
MIRADOR

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Abstract—This research process develops in Paraíso-Mirador community, in order to identify feasible Information and Communication Technologies (ICT) solutions to be implemented in the community. Through the Participatory Action Research (PAR) which let capture the social reality, and through data collection techniques of kind qualitative and quantitative, such as the interviews and surveys generated to families of different population cycles, with the support of community leaders. Giving place identify the problems of the sector and the resources ICT.

Keywords- Participatory Action Research, qualitative and quantitative methods, social, and population cycles, data collection, interviews, survey.

I. INTRODUCTION

At present, the information technology and communication (ICT) play an important role in the lives of individuals, allowing greater access to technology tools to access, disseminate information, encourage learning and entertain; facilities and providing more information in different sectors.¹

The systems engineering program at the Catholic University of Colombia seeks to develop social projects in social computing subject and encouraging the participation of students, teachers and graduates in different sectors of Bogotá. Among the most prominent and high impact social projects of this subject, is the community of Paraíso-Mirador neighborhood in the town of Ciudad Bolívar.

The Catholic University of Colombia does not currently have sufficient information required to identify, analyze and implement projects of high social rate of technological development in the community.

Through the use of participatory action research (PAR) and the data collection methods for qualitative and quantitative analysis direct contact with identifying their needs or specific community issues and technological capabilities have obtained.

Knowing the different research methodologies developed in this project, the next to make social project students will have knowledge of the issues and technological resources available to the community. These develop engineering solutions that meet the expectations and needs of people in this sector.

II. RESEARCH METHODS

This study employed key features of action research and favored elements of participatory action research; "IAP is a way to deliver research capabilities to poor people and subjected to transform their lives for themselves."² There is no one particular model.

Methodology draws on the knowledge of the user population to identify problems, to tailor treatments, and to disseminate the results.³

Although PAR’s history dates back to the 1940s, it became an acceptable paradigm in rehabilitation research when William Graves, former Director of the National Institute on Disability and Rehabilitation Research (NIDRR), challenged researchers to adopt PAR as a means of maximizing the participation of both consumers and vocational rehabilitation service providers and to lessen the gap between research and practice. The NIDRR has encouraged the use of PAR to identify needed services, develop educational materials relevant to disability policy, and develop recommendations for formulation of a public policy agenda.⁴

Were used stages and phases that are used by Marti:
• **PRE-RESEARCH STAGE:** Symptoms, demand and project development: at this stage what is sought is to perform the research approach.

• **DIAGNOSIS:** Be able to perform knowledge of the territory and an approach to the problem from different source documents.

• **PROGRAMMING:** Make an opening to existing knowledge and points of view, using qualitative and participatory methods.

• **CONCLUSIONS AND PROPOSALS:** making concrete proposals to negotiate with the people involved.

• **STAGE POST-RESEARCH:** It implements the above steps and the evaluation of them is performed.

These stages and phases helped to explain the evidence that emerged.

Many researchers and scholars have documented the quality of life available to children and families who live in violent, low-income urban communities these researchers identify multiple factors that contribute to and/or inhibit healthy individual and community development and suggest that violence can have a negative impact on, among other things, a child’s education, health, emotional well-being, sense of self, and ability to communicate effectively with others.5

Participatory action research (PAR) combines systematic research with the development of a practical intervention.

Working under professional guidance and project oversight personnel, PAR methodology draws on the knowledge of the user population to identify problems, to tailor treatments, and to disseminate the results.6

Can be broadly characterized as a “…theoretical standpoint and collaborative methodology that is designed to ensure that those who are affected by the research project have a voice in that project”7

PAR is based on the belief that knowledge is rooted in lived experiences.8

III. **PROPOSED METHODOLOGY**

The methodology proposed for the development of the research conducted during the data collection was through surveys and interviews in Paraíso-Mirador community, conducting an analysis that shows the technological needs in the community, through IAP a qualitative and quantitative analysis.

• **BUILDING RELATIONSHIPS**

The Catholic University of Colombia in its systems engineering program, has in the course curriculum with social computing which is what you want; “Leading university social intervention projects that can contribute to sustainable concrete and pressing problems of the environment, the management solutions from the Social Responsibility ensures that its implementation does not perform as handouts, paternalism or donation of services but as ‘transformative action’ whose purpose either minimize adverse impacts on social groups living in unfavorable and inhuman9 “with three situations which have made direct contact with the people of Paraíso-Mirador exactly in the parish of St. Peter Julian Eymard thanks to pastor Pedro Arturo Cardenas, providing expertise in the area of systems.

An approach to the community is also done through industry focus groups to discuss areas of research questions and assumptions, planning and strengthen research and development project. Taking a survey in the community in past, present and future projects.

Community leaders who are part of the project is the pastor Pedro Arturo Cardenas, president of the community action council Mr. Álvaro Gómez, Giovanny and Elvis Muñoz Giraldo which are residents of the Paraiso neighborhood for over 10 years, who give us information about the community and gives us company for project execution.

• **IDENTIFICATION OF PROBLEMS, SOLUTIONS AND IMPLEMENTATION OF INITIATIVES**

Identifying a problem as a topic for action research is often located within the researcher’s field of work.10

As important, the participants’ stories invite us to enter into their world—a world that is diametrically opposite the one that many of us are familiar.11

Through survey, interviews and handouts with the community is to identify problems, solutions and implementation of new technology initiatives in the community through university students.
• **PLANNING RESEARCH**

At this point you think the most important problems in the community, then the ways to solve them and finally the resources needed to carry out the investigation.

• **INTERVENTION**

"It aims to explore what the major networks and components of social relationship through or influence the group are affected. This study must include both formal institutions such as relational spaces and informal leadership. The most opportune time to do so is the initial phase of the IAP to involve all stakeholders but also very useful for locating information obtained and properly return ".

• **EVALUATION AND USE OF RESULTS**

“The conventional use of the survey technique is essential to ensure the reliability of the results, it means, achieve a high level of confidence that the sample of respondents (usually a small part of the research population) is representative of the entire. No more warranty ascertains whether respondents are chosen randomly.” since taking the survey sample, the results and possible implementations: This sampling techniques, which are based on the calculation of probabilities through the use randomly research solutions teachers college assesses and use thereof.

IV. **IDENTIFICATION ISSUES COMMUNITY REPRESENTATIVE**

March 16th. We interviewed the president of the community action council Mr. Álvaro Gómez, for a number of the inhabitants in the area and we obtained this information:

- There are 4.4 inhabitants per property.
- In Paraíso neighborhood there are approximately 2277 properties with a home occupation of 99%
- In Mirador neighborhood there are approximately 1200 properties with a home occupation of 99%

This information is an approximation of the number of people in Paraíso-Mirador is 15,146, being approximately 1.1% of the population of the town 19th. Which it has a population of 713,794 inhabitants, according to the corresponding DANE year 2005

On February 23rd, March 15th, and 16th current year, was performed the survey in Paraíso-Mirador neighborhood with a participation of 101 families with a total of 347 people from different life cycles, and we obtained the following information from the problems in the sector:

Figure 1: Problems in Paraíso-Mirador neighborhood

![Figure 1: Problems in Paraíso-Mirador neighborhood](image)

Source: The author

As you can see in Figure 1 for the community the biggest issues are; in the first place the insecurity followed by the transport, waste management, access to health, road network, lack of employment and education. And with less importance are; recreation, culture and public services.

V. **CHARACTERIZATION OF ICT RESOURCES ASSOCIATED WITH COMMUNITY PARAÍSO-MIRADOR.**

To observe the technological capacity in the sector different methods of data collection is performed. Which takes place in the community, schools and internet cafe sector. We obtained the following information is obtained:

Community call centers have enabled different uses, with agreements between the ETB and SENA to train the computer science community, the university is conducting the ODIN project which empower the community through students who ninth semester are enrolled in the program of engineering systems. Sector also has ten internet cafe and four schools with computer services.

According to the secretary of the district education increased 275% investment in Information Technology and Communications. In the ICT project have been executed more than 50 billion dollars, making it a cutting edge program in Latin America.
For 384 City Public Schools of the city have been improved high-speed connections, better infrastructure, Wi-Fi, purchase software, etc…

57% of the seats of the district schools of 241 seats, have 30 megs bandwidth.\textsuperscript{15}

As shown in the figure below data is collected in the homes of the community to get more detailed information of the technological capacity in the sector:

\textbf{Figure 2: technological capacity at home}

Source: The author

85% indicate having a cell phone.
69% indicate having a TV and stereo.
34% indicated having a computer.
14% indicate having laptop.
10% indicated having a video game console.

As shown in Figure 3 more than half of the surveyed households do not have internet in their homes, according to the ministry of information technology and communications\textsuperscript{11} in the three years since start live digital has executed major accomplishments like generating that Colombia is recognized as the country with the best policy in ICT world, realizing growth of internet connections 168% 8.8 million connections in 2014, the government is supporting 20,000 Colombians for creation and innovation-based businesses in ICT, 131,000 vulnerable people and / or priority have been made in the process of ICT and digital literacy target by 2014 will reach 335,000. These are some of many achievements of this technology development plan, generating education, employment and motivation to succeed.

VI. ICT SOLUTIONS FEASIBLE TO BE IMPLEMENTED IN THE PARÁISO-MIRADOR COMMUNITY

Given the results generated by the different methods of data collection is to note that in Paraíso-Mirador industry its biggest problem (Fig. 1) are: insecurity, transportation, education, unemployment, road network, access to health and waste management. It also notes that have ICT resources.

As the projects implemented by the Ministry of information technology and communications are mentioned above. And others made by different companies like ETB, which has an agreement with SENA to train the population attending call centers and institutions such as the Catholic University of Colombia.

The information obtained it shows that the community is not aware of the different projects that are carried out daily in the sector, thus not involved in running free training for those responsible for carrying out the projects mentioned above.

- MESSAGING APP

Most people in the community have cell (See Figure 2). That is proposed is to make a mobile application or app, which can be received through Community messaging about the initialization of the training in the various community projects, schedules, start and end date, etc. Creating greater participation and raising awareness to people about the importance of education, telling that one of the major problems in the sector.

- WEB PAGE

Conducting a site of the town in which they are eligible to receive different types of information of interest to the community is also proposed, such as job offers, accidents in the sector, cutting public services, transport
information, initialization projects, health campaigns, vaccination. Due to, in the news, newspapers and other media do not report the news accurately locality 19th. In which can have free internet access in call centers, and students in schools.

- **CHILD PLATFORM**

By having direct contact with the community exposed mothers worry that their children after leaving school had much free time and no advantage for different activities. A serious proposal to make children a platform in which educational games, basic courses in English, math and other subjects are made to strengthen their education outside of schools.

Another proposal is to introduce the different child education app of the android platform that is free.

- **SOCIAL NETWORK**

Social networks play an important role today for young people, according to information obtained in surveys in the internet café, and according to the information obtained from the network call centers12; the most of people who enter Internet services, enter social networks.

Another serious proposal is to create a social network where people in the community are and better communication takes place in the community.

### CONCLUSIONS

### REFERENCES


